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Ph.D. Thesis

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Corporate Failure and Distress Prediction Based on The Combination of Quantitative and Qualitative Data Sources: The Case of New-entrant Airlines in The United States

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To

Snorri Arnar

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ABSTRACT

Since deregulation in the Unites States most jet operating new-entrant carriers have failed. Theories on competition had been put to the test and reality turned out to be different to the vision. The new-entrant airlines were to challenge the inefficient incumbent carriers and provide lower fares for the benefit of the public. To begin with they were successful, but were not able to create sustainable strategy to survive when the incumbents had adjusted to the new operating environment.

The background to the failure predicament is examined in the thesis in considerable detail, in order to give a fairly good overview of the characteristics of new-entrants and the environment they existed in. Much attention is given to the new-entrants' strategy in order to explore past deficiencies and pave the way for successful alternatives.

The European liberalisation is examined in order to contrast it with the US deregulation. The purpose of such contrast is to examine whether the lessons learned in the United States will apply to European new-entrants, both at the present and in the future.

The literature on the causes of corporate failure is examined in detail in order to discover some underlying traits. Success is examined as well in order to identify whether success mirrors failure. In addition, the role of success in causing failure is highlighted.

Statistical failure prediction models are explored in order to cast light on the present status of the failure prediction methodology. That overview explains the foundation for selecting the Logistic Regression statistical methodology for the thesis.

Results of a questionnaire survey performed on new-entrant airlines, is introduced in terms of the dichotomous failure and distress variables. On the grounds of that qualitative survey and a new-entrant airline quantitative data-base, a number of failure prediction and distress models were developed. Finally, the best failure prediction models of these different sources are combined in order to examine whether such combination enhances prediction quality.

The main conclusion of the thesis is that the combination of quantitative and qualitative data sources for failure and distress prediction of corporations, in this case new-entrant airlines, enhances predictability. Furthermore, the general conclusion is that no single prescription exists for success or avoidance of failure due to the dynamism of the corporations and the environment they operate in. However, few prerequisites of success and non-failure were found to be: (i) high relative quality; (ii) dominant market share on routes and airports; (iii) high relative aircraft utilisation; (iv) high relative employee utilisation; (v) controlled growth in terms of maintaining item *(ii)*; low cost in terms of achieving items *(iii)* and *(iv);* and (vi) resourceful innovation without going into the extremities.

CONTENTS

PART I. BACKGROUND THEORY

1. THESIS PROLOGUE 2

1.1 The Purpose of The Thesis 2
1.1.1 Why Research New-entrants? 2
1.1.2 The European Case 3
1.1.3 The Research's Aim 3

1.2 The Project's Organisation 4
1.2.1 Part I 4
1.2.2 Part II 5
1.2.3 Part III 5

1.3 The Thesis Organisation 5

1.4 Key Assumptions 6

1.5 The Underlying Model of Analysis 7

1.6 The New-entrants' Evolution Path 8

1.7 Conclusion 10

2. COMPETITION STRUCTURES 11

2.1 Introduction 11

2.2 Competition Structures 11
2.2.1 Introduction 11
2.2.2 Competition Theory 12
2.2.3 Contestability Theory 13
2.2.4 The Failure of The Contestability Theory 14

2.3 Theoretical Approximation of Air Transport Market Behaviour 15
2.3.1 Airlines under Duopoly 15
2.3.2 The Prisoner's Dilemma 16
2.3.3 The Darwinian Model of Natural Selection 17
2.3.4 The Application of Competition Theory to Air Transport 18
2.3.5 A Support of The Oligopolistic Inference 18

2.4 Conclusion 19

3. THE DEREGULATION PROCESS AND EXPERIENCE IN THE UNITED STATES 21

3.1 Introduction 21

3.2 The Advent of Deregulation 21

3.2.1 The Role of The Civil Aeronautics Board 22
3.2.2 The Economic Basis of Deregulation 23
3.2.3 Changing Ideas on The Role of Government 23
3.2.4 Full Deregulation 24

3.3 The Deregulation Act 25

3.4 Regulation Developments Since The Deregulation Act 26
3.4.1 Computer Reservation Systems 26
3.4.2 Advertising 31
3.4.3 Merger Regulation 32
3.4.4 Bankruptcy Law 33

3.5 Industry Behaviour Following Deregulation 33
3.5.1 Financial Condition The Airline Industry 33
3.5.2 The Economic Environment 34
3.5.3 Industry Fare Structure 35
3.5.4 Market-share 35
3.5.5 Capacity 38
3.5.6 Traffic Growth 39
3.5.7 Hub and Spoke Route Networks 40
3.5.8 The Chapter XI Carriers' Effect on The Industry 43
3.5.9 Concentration 44
3.5.10 Market Behaviour 46
3.5.11 Quality of Service 46

3.6 Conclusion 48

PART II. NEW-ENTRANTS IN THE UNITED STATES UNDER DEREGULATION

4. THE NEW-ENTRANT AIRLINES 51

4.1 Introduction 51

4.2 New-entrants' Classification 51

4.3 Basic Characteristics of New-entrants' Groups 52
4.3.1 Regional Airlines 53
4.3.2 Charter Based Airlines 55
4.3.3 Intrastate Airlines 57
4.3.4 New Airlines 58

4.4 Conclusion 60

5. THE NEW-ENTRANTS' OPERATING ENVIRONMENT 61

5.1 Introduction 61

5.2 The Regulator's Policy Towards The New-entrants 61

5.3 The General Theory of Barriers to Entry 64
5.3.1 General Barriers 64
5.3.2 Levine's Air Transport Barriers 65

5.4 Marketing Barriers **66**
5.4.1 Frequent Flyer Programs 66
5.4.2 Code-sharing 66
5.4.3 CRS's 67
5.4.4 Volume Incentives 69
5.4.5 Yield Management Systems 69

5.5 Infrastructure Barriers **70**
5.5.1 Congested Airports 70
5.5.2 Slots 70
5.5.3 Restricted Access to Gates 72
5.5.4 Restricted Access to Airport Facilities 73
5.5.5 Restriction of Airport Expansion 74
5.5.6 Environmental Impact Restrictions 74
5.5.7 Hubs 75

5.6 Equipment and Financial Barriers **75**
5.6.1 Equipment Barriers 75
5.6.2 Financial Barriers 76

5.7 Legal and Regulatory Barriers **76**
5.7.1 Legal Barriers 76
5.7.2 Anti-trust and Predatory Behaviour 77

5.8 Human Capital Barriers **78**
5.8.1 Employee Barriers 78

5.9 Conclusion **78**

6. THE ANATOMY OF A NEW-ENTRANT **81**

6.1 Introduction **81**

6.2 Management **81**
6.2.1 Education/experience 81
6.2.2 Personality 83
6.2.3 Objectives 84
6.2.4 Locus of Control 84
6.2.5 Decision Making 86

6.3 Organisation **87**
6.3.1 Organisation Structure 87
6.3.2 Employee Issues 89
6.3.3 Union Relations 91
6.3.4 Organisation Evolution 92

6.4 Marketing **94**
6.4.1 Fare Structure and Yields 94
6.4.2 Supply/Capacity 96
6.4.3 Demand 99

6.5 Finance **101**
6.5.1 Access to Capital 101
6.5.2 Aircraft Acquisition 104
6.5.3 Profitability 106

6.5.4 Cost Structure 107
6.5.5 Debt Structure 110

6.6 Operations 111
6.6.1 Route Structure 111
6.6.2 Fleet Structure 112

6.7 Information Systems 113
6.7.1 Information- and Communication Systems 113

6.8 Conclusion 114

7. THE NEW-ENTRANTS' COMPETITION STRATEGY 116

7.1 Introduction 116

7.2 General Competition Strategy 116
7.2.1 Introduction 116
7.2.2 Porter's Competition Forces 117
7.2.3 Entry Risks and Costs 118
7.2.4 Internal and External Growth 119
7.2.5 Customer Influence on Competition 121
7.2.6 Competitors' Analogy 123

7.3 Competition Strategy in Air Transport Markets 124

7.4 New-entrants' Strategies 127
7.4.1 Sequenced Entry 130

7.5 Incumbent's Reaction Strategies 132

7.6 Operations Strategy 133
7.6.1 Routing 133
7.6.2 Equipment 137
7.6.3 Code sharing/interlining/feeding 138

7.7 Marketing Strategy 141
7.7.1 Pricing 141
7.7.2 Service 145
7.7.3 Market Penetration 147
7.7.4 Customer Retention 149
7.7.5 Market-share 150
7.7.6 Promotion and Advertising Strategy 153
7.7.7 Branding and Image 155

7.8 Financial Strategy 156
7.8.1 Costs 156
7.8.2 Mergers 157

7.9 Conclusion 159

8. AIR TRANSPORT LIBERALISATION IN THE EUROPEAN UNION 163

8.1 Introduction 163

8.2 The Move Towards Liberalisation in Europe **163**
8.2.1 Introduction 163
8.2.2 The Treaty of Rome 164
8.2.3 The Gradual Liberalisation Process 165
8.2.4 Liberalised Bilaterals 167
8.2.5 The European Economic Area (EEA) 168

8.3 Industry Structure **169**
8.3.1 Mergers 169
8.3.2 Alliances 171
8.3.3 Charters 172
8.3.4 Degree of Monopoly 173
8.3.5 Fifth Freedom Rights 174

8.4 Financial Structure **175**
8.4.1 Profitability of European Airlines 175
8.4.2 Subsidies 176
8.4.3 Fare Structure 177
8.4.4 Cost Structure 179

8.5 Competition Tools and Strategies **179**
8.5.1 Frequent Flyer Programs (FFP) 179
8.5.2 Computer Reservation Systems 180
8.5.3 Predatory Behaviour 182

8.6 Environment **183**
8.6.1 Government Ownership of European Airlines 183
8.6.2 Congestion 184

8.7 New-entrants Within the European Union **186**
8.7.1 New-entrants in The European Union 1987 - 1993 186
8.7.2 Who Were The New-entrants? 187
8.7.3 European and U.S. Differences With Regard to New-entrants 188

8.8 Conclusion **190**

PART III. THE ISSUE OF FAILURE

9. THE QUESTION OF SUCCESS OR FAILURE **193**

9.1 Introduction **193**
9.1.1 Definition of Failure 193

9.2 The Legal Framework of Bankruptcy **194**
9.2.1 Bankruptcy Law in the United States 194
9.2.2 Bankruptcy Law in the United Kingdom 195

9.3 Bankruptcies and Exogenous Influence **195**
9.3.1 Introduction 195
9.3.2 Environment's Influence 196
9.3.3 Liability of Newness 197

9.4 Causes and Symptoms of Failure **198**
9.4.1 Introduction 198
9.4.2 The Question of Failure 199

9.4.3 The Question of Success 203
9.4.4 Success Contrasted to Failure 206
9.4.5 Success as a Failure Factor 207
9.4.6 Human Capital and Corporate Mortality 209

9.5 Organisational Life-cycle Theories 212
9.5.1 The Organisational Life-cycle Concept 212

9.6 Conclusion 214

10. FAILURE PREDICTION MODELS 216

10.1 Empirical Research On Failure Prediction 216
10.1.1 Introduction 216
10.1.2 Theory Formulation 216
10.1.3 The Use of Ratios 217
10.1.4 Statistical Methodology 220
10.1.5 The Logistic Regression Methodology 224

10.2 Alternative Failure Prediction Models 225
10.2.1 Catastrophe Theory 225
10.2.2 Neural Networks 226

10.3 Theoretical Models Failure Models 227
10.3.1 Introduction 227

10.4 Discussion 228
10.4.1 Empirical Failure Prediction Models 228
10.4.2 Theoretical Causal Models 229
10.4.3 Alternative Failure Prediction Models 229

10.5 Conclusion 230

PART IV. MODEL CONSTRUCTION

11. QUESTIONNAIRE RESULTS 232

11.1 Introduction 232

11.2 Questionnaire Results 232
11.2.1 Questionnaire Construction 232
11.2.2 Sample Construction 234
11.2.3 Response Statistics 236
11.2.4 The Problem of Small Sample Size 236
11.2.5 The Pilot Survey 237
11.2.6 Survey Management 237
11.2.7 Subjects versus airlines 238
11.2.8 Reliability Analysis 239
11.2.9 Responses by Category and Geography 239
11.2.10 Responses by Functional Category 239
11.2.11 Responses by Education 240
11.2.12 Age Distribution of Respondents 240
11.2.13 Respondents' Airline Size Distribution 241

11.3 Factor Importance 241

11.4 Analysis of The Means for The Dichotomous Failure Variable 243
11.4.1 Introduction 243
11.4.2 Management Assessment: Failure 243
11.4.3 Factor Importance: Failure 245

11.5 Analysis of The Means for The Dichotomous Distress Variable 246
11.5.1 Introduction 246
11.5.2 Management Assessment: Distress 246
11.5.3 Part II 248

11.6 The Increased Activity Phenomenon 250

11.7 Conclusion 251

12. NEW-ENTRANT AIRLINES' FAILURE PREDICTION MODELS 253

12.1 Introduction 253
12.1.1 Methodology Considerations 253

12.2 The Application of The Logistic Regression Methodology 254
12.2.1 Model Construction Foundation 254

12.3 Results of Logistic Regression on Questionnaire Part I 256
12.3.1 Model Derived from Questionnaire Part I 256

12.4 Results of Logistic Regression on Questionnaire Part II 258
12.4.1 Models Derived from Questionnaire Part II 258

12.5 Results of Logistic Regression on Airline Data-base 261
12.5.1 Introduction 261
12.5.2 The Phase-in Methodology for the Small Population Case 262
12.5.3 Selection of Ratios 263
12.5.4 Significant Differences Between Groups 264
12.5.5 Models Derived from Data-Base Variables 264

12.6 Practical Application of The Models 268
12.6.1 Prediction Enhancement Through Model Combination 268

12.7 Conclusion 269

13. DISCUSSION OF FINDINGS 271

13.1 Introduction 271

13.2 General Conclusions - Critical Factors 271
13.2.1 Introduction 271
13.2.2 Management and Organisation Factors 271
13.2.3 Marketing and Strategy Factors 272
13.2.4 Financial Factors 274
13.2.5 Operations 275
13.2.6 Information- and Communication Factors 275
13.2.7 Environment 276
13.2.8 Discussion 276

13.3 General Discussion - Failure Prediction Models **278**
13.3.1 Comparison of Classification Accuracy 278
13.3.2 The Application of the Models 280

13.4 Implication of Findings for The European case **280**
13.4.1 Critical Factors Differing Between European and US New-entrants 280
13.4.2 The Application of Failure Prediction Models to The European Case 281

13.5 Suggestions for Further Research **281**

13.6 Research Discussion **281**
13.6.1 The Research's Contribution 281
13.6.2 Conclusion 282

APPENDIX-A ENTRANT AIRLINES MARKET-SHARE AT 50 LARGEST US AIRPORTS 284

APPENDIX-B EUROPEAN NEW-ENTRANT AIRLINES 289

APPENDIX-C CAUSES OF CORPORATE DECLINE 296

APPENDIX-D NEW-ENTRANTS' EQUITY AND DEBT STRUCTURE 297

APPENDIX-E ANALYSIS OF THE QUESTIONNAIRE MEANS: PART I 298

APPENDIX-F ANALYSIS OF THE QUESTIONNAIRE MEANS: PART II 299

APPENDIX-G NEW-ENTRANT AIRLINES' LIFE-CYCLE ANALYSIS 300

APPENDIX-H THE DIFFERENCE BETWEEN EUROPEAN AND U.S. AIRLINE MANAGEMENT PRACTICE 306

APPENDIX-I QUESTIONNAIRE RESEARCH VARIABLES 311

APPENDIX-J CLASSIFICATION OF AIRLINES INTO LOSS AND NON-LOSS MAKERS 316

APPENDIX-K RESULTS OF FACTOR ANALYSIS 317

APPENDIX-L FAILURE PREDICTION MODELS 319

APPENDIX-M ORGANISATIONAL LIFE-CYCLE THEORIES 355

APPENDIX-N SAMPLE QUESTIONNAIRES AND COVER LETTERS 356

TABLES

Table **Page**

2-1 Comparison of Competition Structures 18
2-2 The Number of Scheduled Carriers in Each Market 19
3-1 Sources of CRS's Display Bias 27
3-2 Sources of Complaints About Market Manipulation of CRS's 28
3-3 CRS's Profit Estimation 1988 to 1991 31
3-4 Scheduled Airlines' Net Profit 1979 - 1992 33
3-5 Financial Indicators of Major US Carriers 34
3-6 Economic Trends Since Deregulation 35
3-7 Fare Discounts Pre and Post Deregulation 35
3-8 Market Share by Airline: Enplanements at All Airports 1979-91 36
3-9 Percent Increase in Market Share by Airline Based on Enplanements All Airports, 1980-91 37
3-10 US Airline Capacity 1980 - 1994 38
3-11 US Incumbent Airlines' Operating Profit Per ASK 1978 - 1994 39
3-12 Increases in Capacity by Carrier 1988 - 1992 39
3-13 Growth in US Airline Traffic 1982 - 1993 40
3-14 Hub Market-Shares 42
3-15 Number of Airlines that Achieved 1 Percent Market-share or Greater in The US Market 44
3-16 Large Mergers of US Airlines in 1986 45
3-17 Incumbent Airlines' Consumer Complaints 1978 - 1991 47
3-18 New-entrant Airlines' Consumer Complaints 1978 - 1991 48
4-1 Regional Based New-entrants 54
4-2 Charter Based New-entrants 56
4-3 Intrastate Based New-entrants 58
4-4 Start-up Jet Operating New-entrants 59
6-1 Examples of New-entrant Airlines' Composition of Board of Directors 86
6-2 Strike Periods from 1979 to 1992 92
6-3 Revenue of New-entrant Airlines - US cents per RPK 95
6-4 New-entrants' ASK Yearly Growth 98
6-5 New-entrant Airline's Load Factors 100
6-6 Start-Up Financing Obtained by New-entrants 103
6-7 New-entrant's Aircraft Acquisition 105
6-8 New-entrants' Operating- and Net Profit 1979 - 1992 107
6-9 Comparison of Average Pay Per Employee in 1985 108
6-10 New-entrants' Costs - U.S. - Cents per ASK 109
6-11 Average Stage Length in Miles 112
7-1 New-entrants' Strategies 130
7-2 Sequenced Entry Strategies 131
7-3 Changing Hub Structures 137
7-4 Service Offered by Early New-entrant Airlines 146
7-5 Airlines' Travel Agent Commission as Percent of Revenues 148
7-6 U.S. Flyers and Their Trips 1985 149
7-7 New-entrant's FFP's Tie-ins in 1987 150
7-8 Comparison of Majors' and New-entrants' Number of Airports with Market-share in Excess of 10 Percent 152
7-9 Acquisitions by New-entrant Airlines 158
8-1 Summary of the EU Liberalisation Process 166
8-2 Alliances Between Regionals and Major Carriers 171
8-3 EC Airlines on International Intra-Community Routes - July 1993 173
8-4 Selected EC Airlines on Domestic Routes - July 1993 174
8-5 European Airlines' Utilisation of the Provisions in the Third Package by February 1, 1994 175

8-6 Characteristics of Two Regions in Windle's Sample 179
8-7 European Airline Ownership 184
8-8 New-entry by Country 1986 - 1993 186
8-9 European Jet Operating New-entrant Airlines 187
8-10 Comparison of Revenue Per RPK (Yield) and Cost Per ASK by Selected European and US Carriers 189
9-1 Number of Failures and The Failure Rate in The US (1971-1991) 196
9-2 Age of Failed Businesses in The USA 197
9-3 Grouping of Factors Associated with Failure 201
9-4 Venture Capitalists' View on Corporate Failure Causes 202
9-5 Factors Associated With Success and Failure in German Firms 207
10-1 Occurrence of Ratios Used in Failure Prediction in Five Studies 218
10-2 Misclassification Rates of Representative Bankruptcy Prediction Studies 223
10-3 Comparison of Misclassification Rates of Various Models 226
11-1 Survey Statistics 236
11-2 Agreement among raters within the same airlines: Questionnaire Part I and Part II. 238
11-3 Responses by Category and Geography 239
11-4 Responses by Functional Category 240
11-5 Responses According to Education 240
11-6 Age Distribution of Respondents 240
11-7 Airlines' Size Distribution 241
11-8 Significant Differences Between Failed and Non-failed Carriers: Questionnaire Part I. 244
11-9 Significant Differences Between Failed and Non-failed Carriers: Questionnaire Part II, Past. 245
11-10 Significant Differences Between Loss and Non-loss making Carriers: Questionnaire Part I. 248
11-11 Significant Differences Between Loss and Non-loss Making Airlines 249
12-1 Results of Logistic Regression for Part I 257
12-2 Results of Logistic Regression by Variable Sub-Groups: Part II, Past 259
12-3 Results of Logistic Regression by Variables Sub-Group: Part II,Present 260
12-4 Results of Logistic Regression by Functional Group for Part II, Future 261
12-5 Data Set Selection Rules for Inclusion in The Analysis 263
12-6 Ratios and Variables Derived from The Data-Base 264
12-7 Significant Differences Between Failed and Non-failed Carriers 264
12-8 Models for Variable Sets One Year Prior 265
12-9 Classification Results Two Years Prior 266
12-10 Classification Results Three Years Prior 267
12-11 Prediction Enhancement Through Model Combination 269
13-1 Misclassification Rates of Bankruptcy Prediction Studies 279

FIGURES

Figure **Page**

1-1 The Project's Organisation 4
1-2 The Thesis Organisation 6
1-3 The Underlying Model of Analysis 7
1-4 New-entrants' Evolution Path 9
2-1 The Prisoner's Dilemma 16
3-1 Variables Affecting US Deregulation 22
4-1 New-entrants' Classification Model 52
4-2 New-entrant's Survival Rate in The United States 60
5-1 Consumer Pressure and Industry Resistance to Change 63
6-1 The Lag Between Problem Processing and Problem Generation 93
6-2 People Express Employees' Growth Rate and Proportion with Less Than One Year on The Job Experience 93
6-3 The Relationship Between Yield and Load Factor At Southwest Airlines: Each Quarter 1986 - 1994. 96
6-4 People Express RPM By Month From 1983 - 1986. 96
7-1 The Market Entry Risk Matrix 119
7-2 Sources of Passenger Growth for Scheduled Airlines 121
7-3 Customer's Reaction Contours 122
7-4 Strategy Dimensions 126
7-5 Five Basic Entry Strategies 128
7-6 Entry Strategies of New-entrants 129
7-7 Route Strategy Decision Dimensions 134
7-8 Routing and Service Strategy Dimensions 135
7-9 Travel Agent and Commercial Reservation Cost Matrix 147
9-1 Argenti's Trajectories 199
9-2 Strategic Leadership Dimensions 211
9-3 Causes of Organisational Growing Pains 214
10-1 MDA Statistical Methodology 221
10-2 LRA Methodology 224
11-1 The Survey Process 238
11-2 Increased Activity Prior to Failure 251
12-1 Life-cycle Phase-in Group Inclusion 262
13-1 The Causes and Symptoms of New-entrant Airline Failures 277

Part I.

Background Theory

In this part the neccessary background information will be provided. First, the purpose of the thesis, fundamental models of analysis and assumptions will be revealed. Second, the basic theories of competition and theories pertinent to deregulation in air transport will analysed. Thirdly, the deregulation process and experience in the United States will be discussed in general terms in order to put the operating environment of new-entrant airlines into context.

1. Thesis Prologue

1.1 The Purpose of The Thesis

1.1.1 Why research New-entrants?

When deregulation of the air transport materialised in the United States in 1978, great hopes were associated with it. Primarily in terms of lower fares and increased service to the public. One of the fundamental aspects of deregulation was the potential new entry of new carriers that might be able to offer lower fares than the incumbents and create pressure on the whole air transport system to economise. It was, therefore, believed that the threat of entry by a new airline with new ideas and/or low cost structure to be the foundation of effective competition. This was to be achieved by keeping the incumbents striving to fulfil customers' needs and wants at the price they are willing to pay. This increase in the efficiency of the whole air transport system was supposed to produce the highest obtainable total utility for the users. New-entrants started to appear soon after deregulation creating dramatic changes in the United States. Soon it became apparent, however, that the new-entrants had problems surviving as the post deregulation years passed. In fact, after 1987 very few new-entrants had survived a major reorganisation of the air transport industry, leaving few very large incumbents like American, United and Delta in control. This trend then progressed further and today there are only a few jet operating new-entrants established before 1990, still operating.

There have been numerous explanations to this failure phenomena provided by industry analysts and ex-managers of new-entrant airlines, explanations like: (i) Poor management; (ii) unfavourable regulatory environment (route rights, etc.); (iii) inadequate infrastructure (slots, etc.); (iv) poor financial foundation; (v) overexpansion; (vi) poor service standards; (vii) inadequate distribution systems; (viii) poor marketing strategy; (ix) lack of protection against predatory pricing; (x) brand image conflict due to evolutionary change in the product or strategy of the new-entrants (the problems of growth, etc.); (xi) conspiracy to undermine the new-entrant by incumbents; and (xii) unfavourable economic climate (recession, etc.)

Of course, each downfall has its unique explanation in the eyes of the stakeholder, but are there perhaps similar factors to blame in new-entrant airlines' failures? Can it be that factors that are assumed to be important for survival are actually not the ones that make or break an airline? Can the downfall of a new-entrant be foretold prior to failure? Can a financial distress model prevent failure if used timely enough by the

carrier's management? How does the change in various factors affect the well-being of new-entrants? Are new-entrants being discriminated against by authorities in terms of infrastructure barriers? In the thesis it is hoped that answers will be found to some of the questions here.

1.1.2 The European Case

In the very beginning the research project's aim was to research factors that would make or brake a new-entrant carrier in Europe specifically with the aim of learning from the US experience. For that reason a number of European carriers were included in the questionnaire survey that will be elaborated on in Chapter 11. As the groundwork of the project progressed, it became apparent that enormous differences exist between operating environments of new-entrants in different countries within the European Union. Furthermore, accounting standards and filing differed dramatically and currency exchange rates affected numbers, is such a way that unchanged 'paid in capital' would differ from one year to an other due to fluctuations in the dollar rate.

To complicate matters further a rather unpredictable policies and influence of governments has played a large role in European air transport, making the predictability of any quantitative or qualitative model for that matter highly questionable. Based on these concerns a decision was made to concentrate the project on the US case, where these factors where more or less stable, one currency, laisser-faire policy on air transport and uniform accounting rules and most importantly readily available data on various aspects of the airlines at the DoT.

It is hoped that this study will lay the groundwork for future research on new-entrants' failures for the European case as the situation becomes more uniform than now. This will occur in the near future as government funding of airlines and political protectionism through infrastructure regulation will be abolished in Europe. For that reason a chapter on liberalisation in Europe was included for the reader to gain some perspective for comparison with the US case.

1.1.3 The Research's Aim

This research is primarily aimed at finding factors that can be associated with failure of new-entrant airlines in the United States and apply those factors for the creation of failure prediction models. Although many firm but often contradictory explanations have been given for new-entrant's failure, some of which are listed in Section 1.1.1, most will agree that each of these failures has been the result of an interaction of complex set of factors. By having managers of these carriers rate various factors selected from the literature and previous studies on company failures, a trend is sought that will show what factors were the most important in the mind of the manager during a period of non-distress as well as distress. Therefore, it will give an indication as to what factors were the most important in terms of resources required to deal with them. When these factors have been identified they will be used to

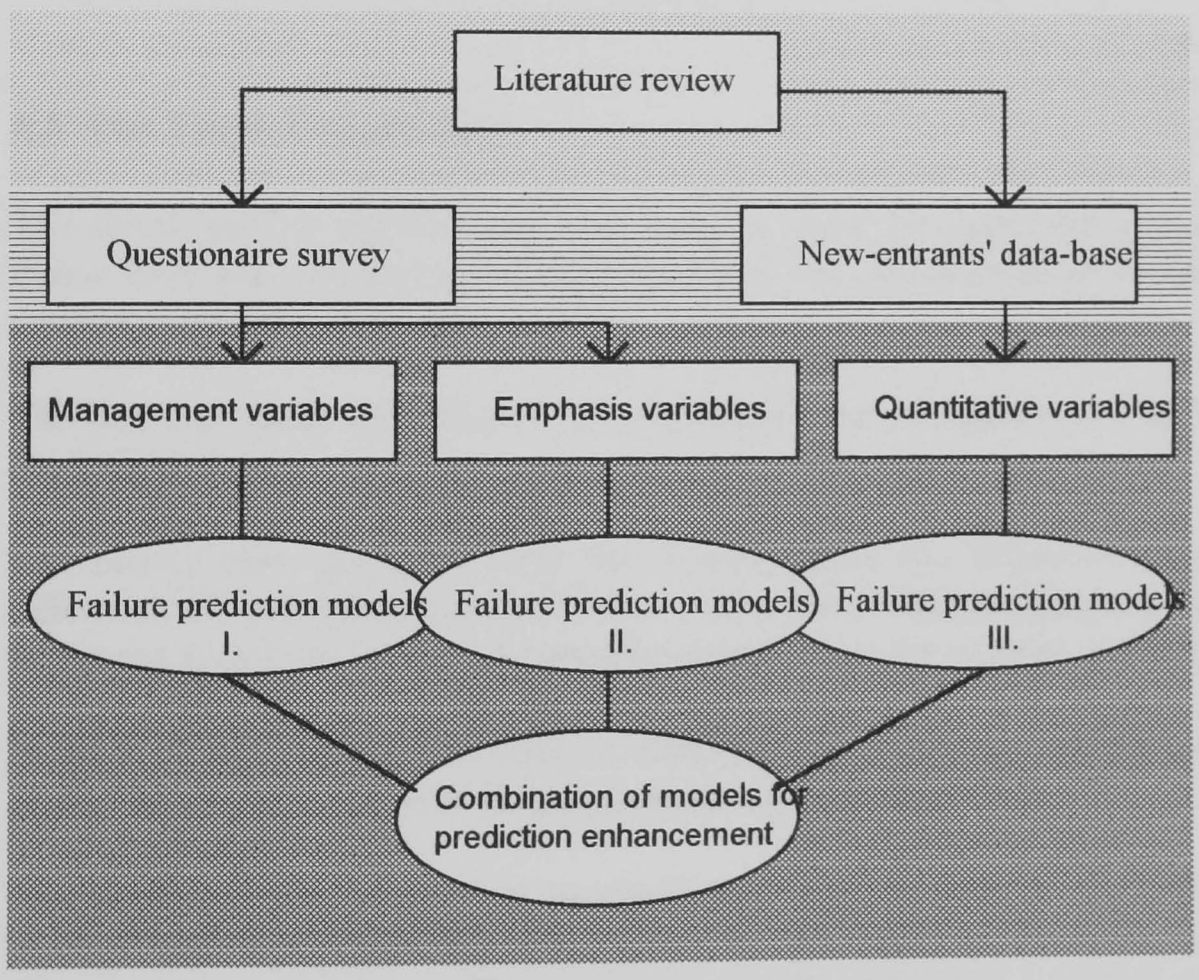
discriminate between failed and non-failed as well as distressed and non-distressed new-entrant carriers.

The final product of this study will be a failure prediction model derived from this implied relationship based on various ratios and questionnaire results, indicating the airlines performance in various dimensions like organisation, operations, finance, strategy, environment and management. In addition it is hoped that the combination of various failure/distress prediction model sources will increase the prediction dimensions for the practitioner and improve prediction accuracy, as a result.

1.2 The Project's Organisation

The following figure shows how the thesis project was organised into three parts, whose description follows.

Figure 1-1 The Project's Organisation



1.2.1 Part I

The thesis project was organised into three main parts. The first part was literature review, whose purpose was to establish what sort of environment the new-entrants encountered, how the new-entrants organised themselves and behaved within the constraints they had. Furthermore, the literature review was used to establish what research had been performed on success and failure and failure prediction models.

1.2.2 Part II

The second part can be divided into two phases. The first phase was the design and implementation of the questionnaire survey, whose purpose was to gain direct insight into management priorities and organisation characteristics at new-entrant airlines and their linkages with good and poor performance. The second phase of Part II was the establishment of a data-base that included financial and traffic data on new-entrants.

1.2.3 Part III

The results of the first two parts led to the establishment of an inventory of new-entrant's success and failure factors. The factors that could be quantified were then drawn from the data-base. Failure prediction models based on the three sources questionnaire Part I, Part II and the data-base, were then constructed and evaluated. The final aspect of the project was the combination of the models from various sources in order to investigate whether prediction enhancement occurred.

1.3 The Thesis Organisation

The thesis itself is divided into four parts in order to clarify its overall structure. Please note that this division is separate from the organisation of the thesis project covered in previous section.

The first part deals with theories of competition and deregulation of air transport in the United States.

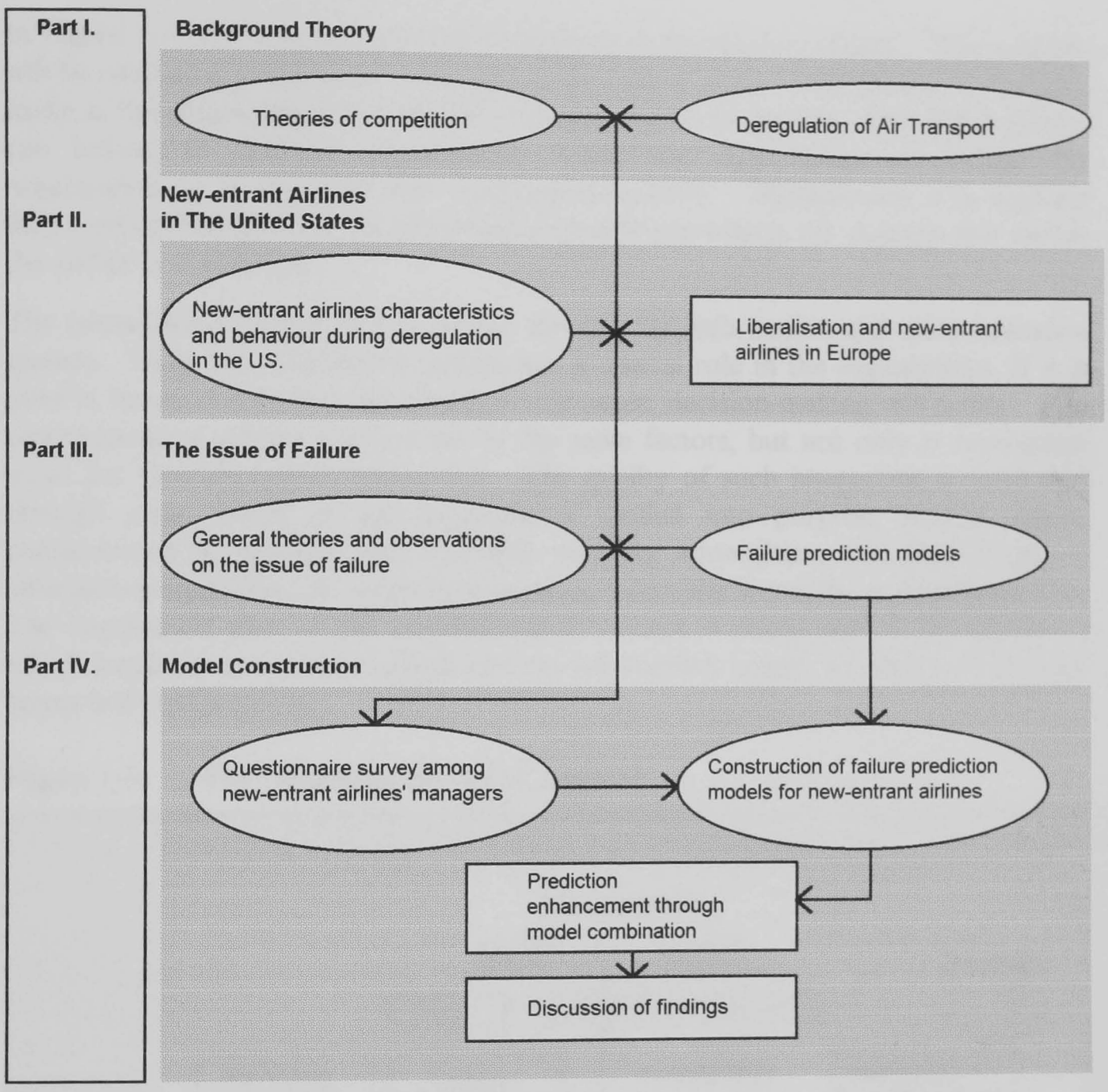
The second part has to do with the characteristics and behaviour of new-entrant airlines in the deregulated environment. The case of liberalisation and new-entrants in Europe is covered in order to provide introduction and contrast in the analysis.

In the third part theories and various observations on the issue of failure are covered as well as an introduction to failure prediction models in general.

The fourth and final part covers the questionnaire survey among new-entrant airlines' managers and subsequent failure prediction models based on the survey and the new-entrant airlines' data base. The part is concluded by showing a method of combining prediction models of various sources and a discussion of the overall findings.

Each part of the thesis is explained in more detail by an introduction paragraph on each parts' title page.

Figure 1-2 The Thesis Organisation



1.4 Key Assumptions

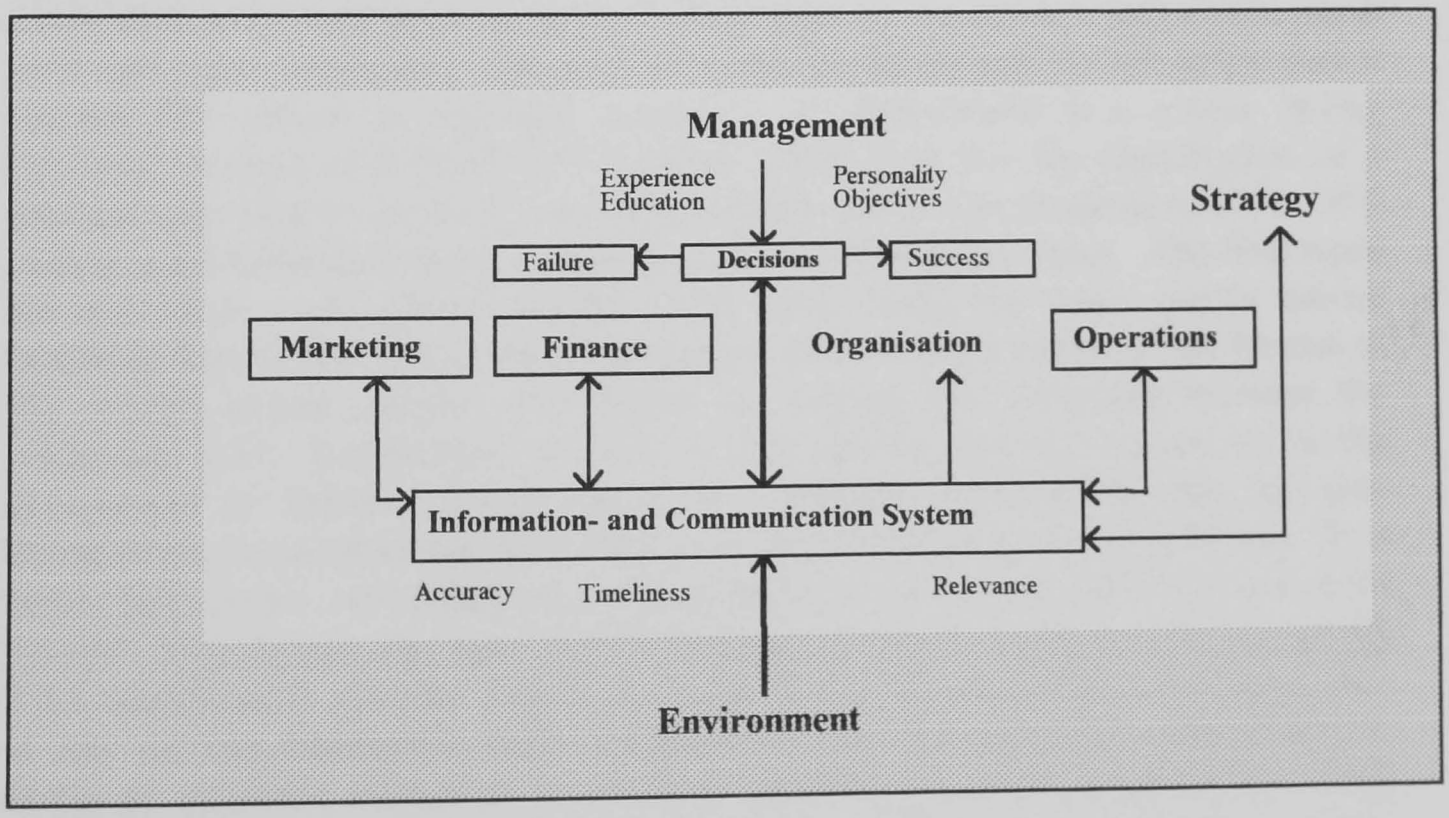
In the thesis all carriers fitting the selection criteria set forth in the introduction of Chapter 3, will be termed as new-entrants throughout their operating life regardless of size. This is done due to the basic assumption that such a carrier is inherently different in terms of internal structure and infrastructure access compared to the pre-deregulation majors across all the stages of the life-cycle. In fact, the thesis is concerned with a set of underprivileged past-deregulation carriers fitting a set of selection criteria in contrast to privileged pre-deregulation carriers. The named privilege factor is defined as having built an asset base under government protection and by having *grandfather-rights* to slots at airports that could be bought and sold after deregulation.

1.5 The Underlying Model of Analysis

In Figure 1-3, the underlying model of analysis in the thesis is shown. This concept will be used as a guideline in constructing the various parts of the thesis. It basically looks at the organisation as a system of interacting factor groups. The factor groups can belong to different departments within the organisation or outside the organisation as is the case with environment factors. Management is a separate factor group that governs the other factor groups and selects the strategy that moves the airline in a direction.

The interaction of these factors occurs through the information and communication system. Thus, the information system has a central role in the organisation. If it is poor in terms of accuracy, timeliness or relevance, decision-making will suffer. The communication system is governed by the same factors, but not only in mechanical ways but through human interaction. The quality of such interaction is facilitated through clear vision of the organisation spelled into purpose, strong culture characterised by cheerful and enjoyable working atmosphere, free interchange of information regardless of employees position within the hierarchy or functional area. The mechanical part of the communication system is composed of the degree to which employee interaction is built into the information system by means of message boxes and conferencing.

Figure 1-3 The Underlying Model of Analysis



Decisions are bound to be affected by the managers' background, be it prior experience, education, personality or personal objectives. These effects are person related and constitute the internal influence on the manager's decision-making, while external influences are derived from the environment through the information- and

communication system. The decisions based on the analysis of information from the information- and communication system, subject to these two sources of influence, determine the airline's fortune.

The direction lines in Figure 1-2 reveal how communication flows between the factor groups through the information- and communication system enabling managers to make decisions which in turn affect the factors within the groups. The model is unique by placing the information- and communication system as the central engine in the company but recognising that the human influence will interfere both positively and negatively in the manager's decision making. Another feature is the assumption that decision-making plays a central role in determining the company's fortune.

1.6 The New-entrants' Evolution Path

Every company has a life-cycle just like an organism. The airline will therefore go through various stages from infancy to maturity and eventually decline. One of the fundamental aspects of management is, then, to maintain the health of the organisation in order to extend its life. Therefore, the life-cycle concept is important in financial distress and bankruptcy analysis due to its illustrative capacity of explaining the changing demands on the organisation as it grows and matures. In order to depict the special case of new-entrant airlines in the United States, namely fast growth and sudden decline, a conceptual evolution model was produced, as illustrated in Figure 1-3.

In the model, the term S*tart-up* airline will be used for the airline's preparation phase until operations commence. The term *New-entrant* will be used for the airline until it reaches $99 million in operating revenue. A *Transitional* is a carrier having operating revenue of $100 to $499 million, which is in fact the classification of a national according to the DoT. An *Interim-major* carrier has revenues of $500 - 999 million and *Modulation-major* carrier in excess of $1billion or more. The final types are the *Mega-* and *Global* carriers.[1] The latter being any major carrier having operating base within two or more continents, while a mega carrier would be one of the world's largest carriers. The reason for making this distinction between the traditional FAA classification scheme, is that carriers starting operations in the deregulated or liberated market grow in a different environment than the pre-deregulation incumbents that built their asset base under protective regulation. As a result, the carriers established after deregulation are sometimes referred to as new-entrants even though they have already reached the size of a major according to the FAA classification. Another important reason to use the classification in Figure 1-4, is that carriers established under deregulation may have different composition in terms of structure compared to carriers established before Deregulation. This possibility, will however, not be researched in this thesis, but pointed out here as a basis for further research.

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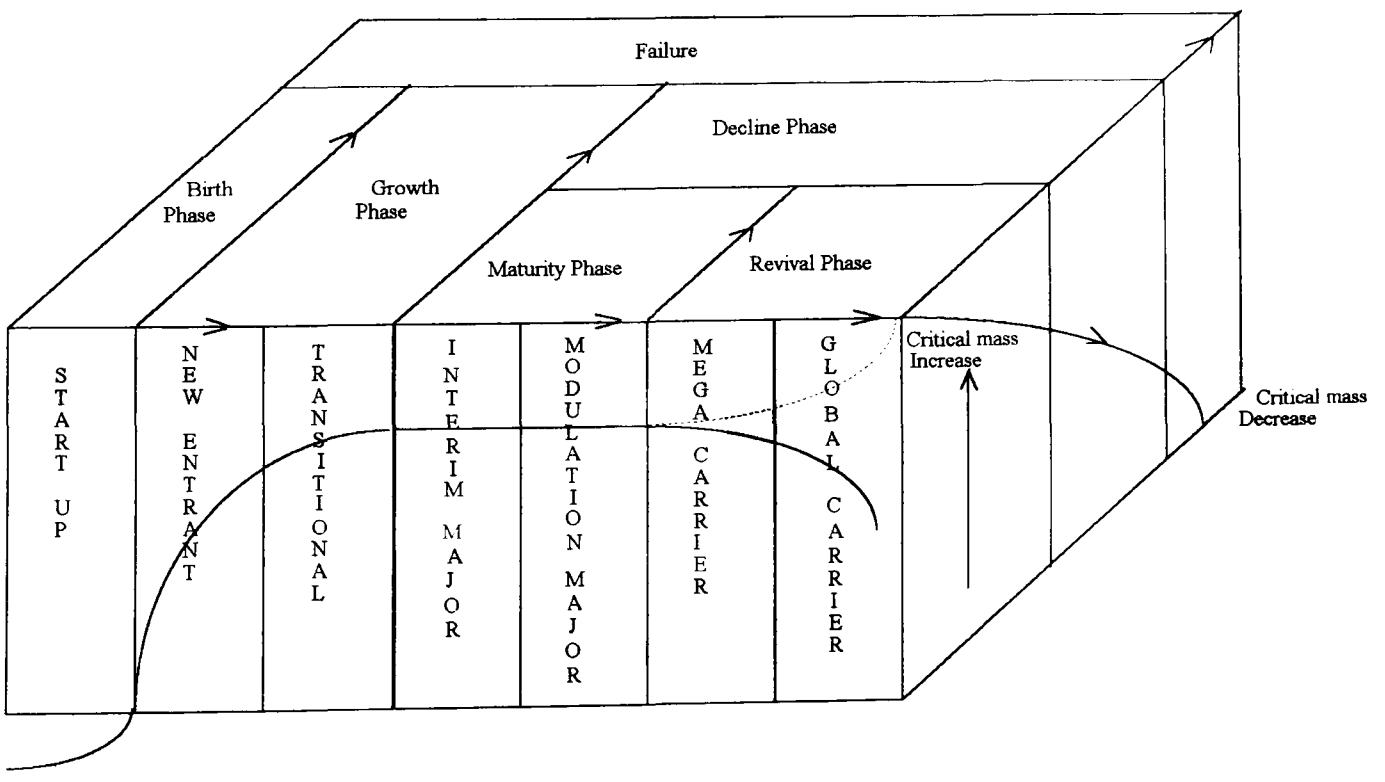
[1] Such carrier would result from a merger between USAir and British Airways.

The *evolution path* shows how the new-entrant airline advances in size from a small carrier to a large carrier in terms of *critical mass*. An airline can remain at any stage except the first one which is *Start-up*. Although these terms are used to explain this evolution they are used interchangeably with the terms 'new-entrant' meaning any airline that fits the definition of a new-entrant postulated in Chapter 4, Section 4.2. It is assumed that a carrier can stagnate or fail at any stage. Meaning that a carrier can progress through the stages at a fast phase and then suddenly fail at the *Modulation-major* stage or any other stage for that matter.

Jet operating carrier will usually leave the *Start-up* stage during the first year of operations, enter the *New-entrant's stage* in the first or second year of operations and the *Transitional* stage during the first to third year of operations. The fourth stage *Interim-major* stage is usually entered during the third to fifth year of operations. The last stage is the *Modulation-major* which the carrier enters usually after five years of operations. It must be noted, however, that the time at which the carrier enters a stage is very different depending on strategy and character of the operations, thus, the time frame is only a rough guide. What is more, a carrier can stay for years on a single stage due to a mature market or slow growth strategy. According to historical trends new-entrants have not declined from the new-entrants or transitional stage due to lack of critical mass to deploy. This means that such carriers fail suddenly. Furthermore, many new-entrants of early success have failed as they reached the *Modulation-major* stage but declined for short period of time before failure or successful turnaround.[2]

Figure 1-4 New-entrants' Evolution Path



[2] America West enjoyed a successful turnaround during Chapter XI bankruptcy.

The underlying principle of the length of the decline period is therefore the size of the asset base resource, as shown in the figure. Then one can infer that one of the *revival* techniques of US carriers was to produce super-size carriers in order to enjoy scale efficiencies. Another revival method was to increase international operations[3] that will eventually lead to mergers of international carriers, producing a *Global-carrier*.

1.7 Conclusion

A number of concepts have been introduced in the chapter to facilitate the reader's understanding of the underlying principles of the thesis. These concepts are a necessary introduction to the ideology on which the thesis is based.

The purpose of the thesis is to provide a comprehensive background to answer a number of basic questions about new-entrants and to develop from that base, failure and distress prediction models from various sources of data.

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[3] Looking from the US example, American and United.

2. Competition Structures

2.1 Introduction

The chapter's purpose is to review competition theories in order to cast light on the reasons why deregulation of the air transport industry occurred in the United States. Furthermore, some inference will be made as to what competition theory applies to air transport, in the context of the market behaviour after deregulation was initiated.

Furthermore, theories relating to competition behaviour will be examined in the context of the Prisoner's Dilemma, the Darwinian theory of Natural Selection, Oligopoly and Duopoly.

2.2 Competition Structures

2.2.1 Introduction

There has been increased movement to the notion that unregulated competition actually increases the welfare of all. This idea has been disputed by Marxists and Keynesians in the past. As many western societies are moving away from Keynesian economics and towards laisser-faire economics, competition intensity or rivalry is increasing. In view of these developments the study of competition strategy has become to be of major importance to companies trying to gain competitive advantage in the fight for customers. Consequently there has been an increase in company failures as the stronger and the smarter outmanoeuvre the weaker and the smaller in the fight for customers. As a result, every company is constantly fighting for its survival in a way that resembles Darwin's theories on the survival of the fittest.

One of the fundamental prerequisites to reaching optimum welfare equilibrium in an industry where the buyers are weak[4], like in air transport, is to maintain effective competition; where the firms strive to control costs in order to offer low prices to attract buyers and maintain or gain market-share and profitability. The strongest method to achieve this target is by a constant threat of new entry by new firms or existing firms, into existing markets. The following sections will explore this equilibrium with new-entrants especially in mind.

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[4] Weak in this respect means that a single buyer will not be able to influence the provider of the service. If there are few large buyers, for example, any single buyer can inflict much influence on the provider in all respects of the operation and price setting.

2.2.2 Competition Theory

Description of each competition structure will follow, in order to examine the difference between perfect and imperfect competition.

(i) Perfect competition is usually associated with greater market performance, higher industry output levels, lower costs and prices. The structure may, nevertheless, be less beneficial to the consumers than presumed as benefits can arise from product differentiation. Perfect competition dictates a market where barriers to entry are non-existent, many small firms sell identical products to many buyers, all the players have perfect information and compete solely on the basis of price. In view of the tendency, in most if not all industries, of sellers to think of ways to gain competitive advantage on the basis of other factors than price, one can clearly see that perfect competition is an unreal concept in consumer markets.

(ii) Imperfect competition is characterised by two main forms, monopolistic competition and oligopoly. Monopolistic competition is in a market where there are many small suppliers of non-standardised products. Thus each supplier is providing his own differentiated product(usually branded) and has a monopoly control over that product. As all the products are similar, the suppliers are competing with each other in the market. An oligopoly is a market structure with high entry barriers and few sellers. The relationship between the suppliers is interdependent, meaning that decision making is heavily induced by other suppliers in the market. Oligopolistic markets often take the form of excessive emphasis on product differentiation as price differentiation more often than not leads to price-wars due to the suppliers' priority in maintaining their market-share. If there is total avoidance of price competition the consumers will be paying high prices due to the costs associated with the escalation of product differentiation. Yet, product differentiation does provide consumers with increased choice and often better tailored products to their individual needs and wants. Features that customers may be willing to pay a premium price for.

(iii) Pure monopoly is a market structure where one firm is in a market with high barriers to entry, selling an unique product. Pure monopoly does usually not exist as there are usually products that can replace the product supplied by the monopolist. For example, if one does not want to use the only airline in the market one can drive, sail, walk, cycle or use the bus. Nevertheless, it must be recognised that monopoly has been the norm in domestic markets rather than the exception in countries around the world. If not altogether then route-wise by the granting of exclusive rights to a route, although, competition by other transportation modes becomes more effective as distance travelled becomes less.

2.2.3 Contestability Theory

The threat of potential entry has been termed as contestability in the literature and theorised by Baumol, Panzar and Willing in 1982.[5] The theory states that the benefits of perfect competition can be realised without having many firms producing because the threat of entry will actually manifest itself as an effective substitute for perfect competition, given that entry and exit is costless.[6]

The conditions for contestability are as follows:

> **(i) Equal access to economies of scale and to technology, whether expressed as access to competitive levels of unit cost or as equivalent access to product quality;**
> **(ii) no sunk costs, a firm can enter and exit without entry and exit costs, including operating losses resulting from predation; and**
> **(iii) price sustainability, there is a set of prices that can occur after the entry of at least one firm which will support profitable operation.**[7]

Fawcett and Farris argue in a 1989 paper that the airline industry showed characteristics of a contestable market before deregulation and at the beginning of deregulation but has developed into a non-contestable market.[8] It must, however, be emphasised that the theory of perfect contestability was never supposed to describe reality, K. Button recognised this in his work and quoted Baumol, i.e.

> **In our analysis, perfect contestability then serves not primarily as a description of reality, but as a benchmark for desirable industrial organization which is far more flexible and is applicable far more widely than one that was available to us before.**[9]

If air transport markets are not perfectly contestable then they may be imperfectly contestable. This implies that potential new-entrants may have some influence on the total welfare derived from the market. This was developed into the theory of imperfect contestability.

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[5] Baumol, W.J., Panzar, J.C. and Willing, R., Contestable Markets and The Theory of Industry Structure, Harcourt Brace Jovanovich, Sandiago, 1982. See also: Baumol, Panzar, Willing, Contestable Markets: An Uprising in the Theory of Industrial Structure, American Economic Review, 1983.

[6] Op. cit. (Baumol, 1982).

[7] Levine, Michael E., Airline Competition in Deregulated Markets: Theory, Firm Strategy and Public Policy, Yale Journal on Regulation, Vol 4, No. 2, Spring 1987, pp. 404-405.

[8] Fawcett, Stanley E. and Farris, Martin T., Contestable Markets and Airline Adaptability Under Deregulation, Transportation Journal, Fall 1989, p. 12.

[9] Baumol, W. J., Contestable Markets: an uprising in the theory of industrial structure, American Economic Review, 72, p.2. This was quoted in: Button, Kenneth, The deregulation of U.S. interstate aviation: an assessment of causes and consequences, Transport Reviews, 1989, Vol. 9, No. 2, p. 108.

The term was originally put forth by Bain[10] and defined as follows by Morrison and Winston:

> **...for a given route, our welfare-change measure is influenced by the number of both actual and potential carriers on the route.**[11]

Morrison and Winston conclude that the air transport market is actually imperfectly contestable based on the fact that three potential competitors are necessary in order to have the same effect as one actual competitor.[12] They also found that small 'critical mass' and at least four potential carriers are necessary in order to affect the behaviour of actual carriers.[13]

2.2.4 The Failure of The Contestability Theory

Critics of the contestability theory state that the sunk costs of route development and brand loyalty render the theory invalid in air transport markets. Although the incumbents should have been the disadvantaged carriers under deregulation in view of their cost structure, they were able to turn their size to their advantage by developing competitive tools that increased the new-entrants costs, thus, reducing the effective cost difference. These tools were especially effective in terms of reducing the new-entrant's load factor despite its lower cost structure and lower average fares. Thus, the incumbents have been effective in driving the new-entrants out of business and reducing the implied contestability of the industry. However, new entry seems to be cyclical in the sense that as the industry is weakened due to heavy losses there is an upsurge in market entry. Thus, market entry as such is not made on the basis of rents but rather on the basis of how wounded the industry is at the time of entry.

Levine points out that contestability theory allows for economies of scale unlike the theory of perfect competition.[14] However, economies of scale reduce the propensity of new entrants to compete in a market. Economies of scale relating to costs were, however, believed not to exist in aviation. On the contrary, new entrant airlines

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[10] Bain, Joe S., A Note on Pricing in Monopoly and Oligopoly, 39 American Econ. Rev., 1949, No. 448, 452 & no.7.

[11] Morrison, Steven and Winston, Clifford, Empirical Implications and Tests of Contestability Hypothesis, Journal of Law and Economics, vol. XXX, April 1987, p. 59.

[12] Op. cit. (Morrison and Winston), p. 61.

[13] Morrison and Winston do not take into account the 'level' of threat of a potential carrier. There is a major difference between the threat of a potential entry by large low cost carrier like Southwest compared to a small new-entrant like Reno Air. The analysis show that the potential threat to the incumbents is only accounted for when the potential entrant is already operating in other markets and has achieved 'small critical mass'. What consitutes a 'small critical mass' is not defined further by the authors and leaves therefore a questionmark as to what sort of a carrier it represents. Such definition is, however, important as most new-entrants represent neglible 'critical-mass'. It must, therefore, be concluded that research on contestability must distinguish between potential entry of existing firms and new firms in the market, as the latter is a lesser threat to an incumbent carrier and constitutes, therefore, less contestability in the market.

[14] Op. cit. (Levine, 1987), see note 60 on page 404 in his article.

would have the cost advantage due to the high cost structure of the incumbent carriers. Thus, it was believed that economies of scale would not be an issue of new entry in air transport. The fact of the matter is, as has been pointed out by Levine, that there are other sorts of economies that created barriers to entry and facilitated the oligopolistic concentration in the deregulated air transport market. These barriers are economies of scope, information and density. The result according to Levine is that the competitive significance of computer reservation systems, contractual vertical integration, code-sharing, development of hubs, consolidation to achieve 'presence' and possibility of predation, have become a major barrier to entry.[15] Accordingly, rendering market contestability non-existent.

2.3 Theoretical Approximation of Air Transport Market Behaviour

2.3.1 Airlines under Duopoly

Bowder and Zhang[16] found that the Cournot Oligopoly model was more consistent than the Bertrand or Cartel models with data on duopoly routes operated by United and American. The concern of the test was a discussion of the industry being subject to 'excessive competition' and becoming 'excessively concentrated'. The Cournot model assumes that each of the competitors takes the quantity as given, while under the Bertrand model they take the price as given. If a duopolist under the Bertrand model changes his price under the irrational assumption that the competitor will keep his price fixed, the result will surely be price war and prices will approach marginal costs. Cournot behaviour is, however, not rational in reality and a manager can't make a Cournot assumption in the face of the 'principle of outsmarting'.[17] A Cournot dupolist could improve his situation by rethinking his strategy and gain advantage that way. If one considers the fact that prices usually drop substantially when the third carrier enters a route, one may easily assume that duopolists form cartels in order to maintain their set market-share and a fixed fare. The mere fact that such a cartel doesn't need to be communicated directly but assumed or communicated through the CRS's supports this view. Therefore, under duopolistic structure there is a tendency to form cartels in order to monitor prices and, therefore, build blockages against entry.[18] In view of this it is logical that the Cournot model applies rather than the Bertrand as the airlines would not reduce the profitability of the duopolistic route by tinkering with the price.

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[15] Op. cit. (Levine, 1987), pp. 418-419.

[16] Brander, James A., and Zhang, Anming, Market conduct in the airline industry; an empirical investigation, Rand Journal of Economics, Vol. 21, No. 4, Winter 1990.

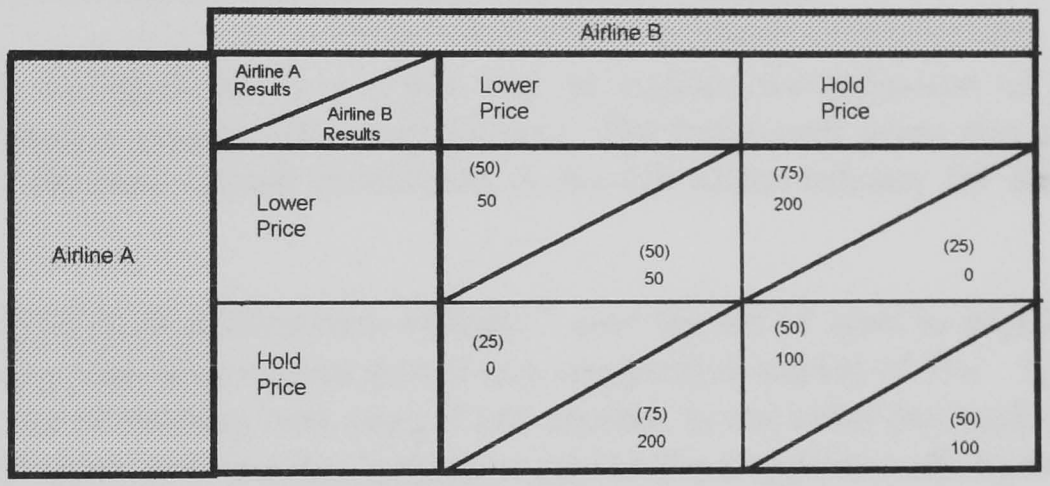
[17] This principle is derived from Game Theory.

[18] One may ask how a cartel situation leading to higher fares may block entry. To answer this on can point out that the new-entrant can not gain market-share on price differentiation due to its lower cost structure, if the incumbents enforce through predation a fixed price that is higher than the new-entrant can offer. If the new-entrant accepts the situation and attempts to compete it will not posess any advantage in the eyes of the customer and the new-entrant falls between as a result.

2.3.2 The Prisoner's Dilemma

The so called 'prisoner's dilemma' can contribute to the understanding of airline behaviour under oligopolistic competition. The simple matrix shown in Figure 2.1 depicts that if an airline reacts to a competitor's fare reduction by reducing its own fares, both will maintain their market-share but will be worse off. If, however, either one reduces fares without a reaction by the other, an increase in market-share and profit will be the result. The most beneficial action for both would be to hold prices, thus, maintaining the market-share and present profit levels. This is what is called a cartel situation, because the prerequisite to maintain this situation is an agreement not to break the fare equilibrium.[19]

Figure 2-1 The Prisoner's Dilemma



While collusion is illegal in the United States the cartel state is not inconceivable. The airlines can decide unilaterally on a fare in a market by following a price leader. However, such a situation is inherently unstable as the environment can change, for example, during recession when excess capacity may be in the market. An effective cartel needs policing and that can not be done legally. Yet cartel discipline is possible through threats often signalled through CRS's among US airlines.[20]

In a market with low entry barriers, rent will attract a new entrant. Usually with lower cost structure. Thus, it is necessary for the incumbents to raise entry barriers in an industry with inherently low entry barriers. One way of doing so is to adapt a 'deterrent' strategy where the airline will minimise profits whenever there is a likelihood of new-entry. In a situation where both players react to one other and the payoff becomes negative, the only long-term benefit to either one is if one exits the market and previous profit levels can be reinstated. In such a situation the staying power of the players becomes the issue and profits are sacrificed for market-share. The problem is, still, that as the profit levels are reinstated new-entrants will emerge

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[19] For such equilibrium to form, it seems that a ratio of 2 to 1 in market-share between the two competitors has to exist. See section 1.3.5, Competitors Analogy, item (v).

[20] See The Avmark Aviation Economist, The silent conversation issue: farce or tragedy?, May 1993, pp. 2-4.

and a price war will reoccur. The only way out of the dilemma for the new-entrant is to develop a niche that is hard for the competitors to enter. In the air transport industry the scope for niche marketing is, however, limited due to the commodity nature of the product. Geographical niches are possible but easy for the competitors to enter due to the inherent ease of moving the 'plant' the aircraft from one market to another. Operational niches where the airline operates direct services instead of hub and spokes are more suitable to the time sensitive passengers. Such strategy has worked well for Southwest Airlines but due to the airline's long-term profitability other airlines are taking up similar strategy and entering direct services.[21]

2.3.3 The Darwinian Model of Natural Selection

In an economic system where behavioural freedom is almost limitless in economic terms, meaning that predatory behaviour is allowed or antitrust laws poorly enforced, there is going to be what is termed as 'economic natural selection'.[22]

The framework is important as a crude way to explain the behaviour of large powerful airlines in a market with weak airlines. The framework gives also simple explanation for the poor overall profitability in the US airline industry for the past decade.

The theory derived from evolutionary biology,[23] uses the act of *spite* to explain the behaviour of firms that have market power in a competitive market of few. Spite is the behaviour trait of harming both oneself and another, in the belief that such an act will only lead to short-term loss but long-term gain as the competitor will be harmed more. Schaffer states that:

When firms have market power[24], the potential for 'spiteful' behaviour exists. A firm which forgoes the opportunity to maximise its absolute profit may still enjoy a selective advantage over its competitors if its 'spiteful' deviation from profit-maximisation harms its competitors more than itself.[25]

Thus, it could be alleged that airline's spitefulness has caused the immense industry losses during deregulation. The sign of reversal can be seen by the fact that the mega carriers, experiencing losses for many consecutive years, are retiring aircraft and

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[21] Furthermore, the second part of Southwest's strategy, to enter secondary markets, will soon be saturated as there are only so many markets available for a carrier operating jet equipment.

[22] The best known application of this concept was by Milton Friedman, The methodology of positive economics, in: Essays in positive economics, University of Chicago Press, Chicago, Ill., 1953, p.22.

[23] See: Hamilton, William D., Selfish and spiteful behaviour in an evolutionary model, Nature 228, 1970, pp. 1218-1220; and selection of selfish and altruistic behaviour in some extreme models, in: J.F. Eisenberg and Wilton S. Dillon, eds., Man and beast: Comparative social behaviour, Smithsonian Institution, Washington, D.C., 1971, pp. 57-91.

[24] Market power is the ability of a firm to control market prices and other terms and conditions of supply, usually through dominant market-share.

[25] Shaffer, Mark E., Are Profit Maximisers the Best Survivors?, Journal of Economic Behavior and Organisation, Vol. 12, 1989, p. 30.

exiting unprofitable markets, thus, increasing the contestability of the market. The purpose of such behaviour is to cash in on the short term 'spitefulness' by reducing over-capacity and stem away from fare-wars, maintain fare levels, cut costs and increase profitability.[26]

2.3.4 The Application of Competition Theory to Air Transport

The question is then whether we are dealing with oligopoly, monopolistic competition or perfect contestability in the US deregulated air transport, as the perfect competition structure has been excluded as unrealistic. Table --2-1 shows that there is a distinction between monopolistic and oligopolistic competition in two important ways, namely the requirement of many small sellers and perfect information under monopolistic competition. This does not prevail in the air transport industry as sellers are few when individual markets are examined and information biased or not available to buyers, as a result oligopolistic or perfect contestability prevails in air transport markets.[27] Now that the hypothesis of perfect contestability describing air transport markets is rejected in Section 2.2.4, the only competition structure that approximates Deregulated air transport markets is that of oligopoly.

Table --2-1 Comparison of Competition Structures

	Perfect Competition Theory		*Imperfect Competition Theory*		
	Perfect competition	Pure monopoly	Monopolistic competition	Oligopolistic competition[28]	Perfect contestability
Many small buyers	■	(■)	■	■	(■)
Many small sellers	■		■		(■)
Differentiated product			■	■	(■)
Barriers to entry and exit		■			
Perfect information	■		■		■
Aggressive advertising				■	■
Differentiated pricing			■	■	■
Competition induced decision-making[29]				■	■

(■) = Whatever is efficient or natural to the industry.

2.3.5 A Support of The Oligopolistic Inference

In order to test the oligopolistic inference the number of airlines serving each route in the Unites States domestic market was analysed. To begin with one might expect

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[26] In 1993 Delta retired 20 aircraft and layed off 600 pilots, United made an agreement to defer and convert to options 49 aircraft orders, American cut 900 jobs and reduced its operation at unprofitable San Jose hub, which created an immediate oportunity for Southwest Airlines. See: US cuts win confidence, Airline Business, May 1993, p. 10.

[27] For a comprehensive discussion on this issue see: Financial Condition of The Airline Industry, hearings before the Subcomm. on Aviation of the Comm. on Public Works and Transp., 103 Congr., 1st session, February 17-24, 1993.

[28] Differentiated oligopoly is where few competitors offer substantial product differentiation. This is not true for large major carriers as their product differentiation is negligble.

[29] A competitively induced decision making can sometimes make the firm obsessed with competitors actions, thus, opening a gap in the market for new-entrants.

much competition in the US air transport market as the number of carriers with more than 1 percent market-share were 15 in 1991.[30] However, there are not many routes that have more than two carriers competing. In fact most routes are served by only one carrier. Furthermore, most of the smaller carriers are locked into marketing agreements with the large incumbents. Thus, it is apparent that effective competition is less than one might think route wise. Table 2-2, shows that large portion of routes are actually monopolies, while duopolistic and oligopolistic routes are only small portion of the total number of markets.

Table 2-2 The Number of Scheduled Carriers in Each Market

Number of carriers	*February 1978*	*%*	*February 1987*	*%*
1	3839	77.3	3458	65.3
2	802	16.2	1027	19.4
3	205	4.1	419	7.9
4	66	1.3	191	3.6
5	26	0.5	87	1.6
6	13	0.3	52	1.0
7	7	0.1	27	0.5
8	4	0.1	14	0.3
9	1	0.02	8	0.2
10+	2	0.04	9	0.2
	4965	~100.0	5292	100.0

Source: The table is based on Button (1989). Total percentages may not add up to 100 percent due to rounding.

This actually depicts that routes are subject to different competition structures namely: monopoly, duopoly and oligopoly. This means that there are many parts to play that call for different strategies on behalf of the airline. Airlines are often, therefore, strategic clusters rather than one strategic entity.

2.4 Conclusion

It is concluded that the US airline industry approaches oligopolistic rather than monopolistic structure. The intense rivalry that has characterised the industry since deregulation, is because of excess capacity, market-share orientation, Chapter XI carriers, spiteful behaviour and deterrent strategy to prevent new-entrance.

Most routes in the US domestic market are monopoly routes or 65 percent, 19.4 percent were duopolies, while 15.3 percent had three or more competitors in 1987. This indicates that a large incumbent is a strategic cluster rather than a single strategic entity, as it has to adapt to three different competition structures calling for different strategies. Incumbents under duopoly tend to compete in terms of capacity rather than price, which indicates that they are prone to form a cartel situation on price.

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[30] Maldutis, John, Airline Competition at the 50 Largest U.S. Airports - Update, Salomon Brothers, July 7, 1992.

Darwin's theory of Natural Selection explains well the tendency of the stronger airlines (spiteful incumbents) to harm themselves (fares below costs) in order to harm others (new-entrants) more. The optimum end-result for the spiteful player would then be the death of the weak carriers and the spiteful carriers will be restored to strength (higher fares). This theory explains very well, in general terms, the competitive behaviour in the US deregulated air transport market.

The prisoner's dilemma explains that forceful reactions of incumbents to a new-entrant have tended to move all players to a worse profit situation. This could be explained in terms of the theory of 'spite' where a strong carrier may decide to forego short-term profitability for a long term market power.

The following chapter will examine how the actual application of economic theory worked in the U.S. air transport market. The analysis will be in general terms in order to give ample perspective on the new-entrants' competition environment.

3. The Deregulation Process and Experience in The United States

3.1 Introduction

The purpose of the chapter is to give an overview of the developments leading to deregulation in the United States, as well its effects on law and regulation as experience accumulated. Furthermore, deregulation's effect on the airlines and the consumer will be examined, in order to put the new-entrant airlines into context with the following chapters. One must vision that a new-entrant's chance of survival is dependent on its own actions, just as well on what is happening in the economy, at the incumbent airlines, and in the government and its institutions. The chapter will, therefore, give a brief account of this issues, as a basis to the main promulgation of the thesis, namely what factors constitute success and failure of new-entrant airlines and which of those can be quantified and entered into a failure prediction model.

3.2 The Advent of Deregulation

With the advent of consumerism, that many date to the beginning of Ralph Nader's[31] crusade against safety negligence of US automobile manufacturer's in the 70's, corporations just as well as the lawmaker had to shift their focus to the consumer and their ultimate benefit in many respects. It is in this climate that ideas of reducing the role of regulation in the economic sector become a reality. Not that the idea was new but rather that the climate was ripe for its implementation.[32]

Air transport was in many respects a suitable testing ground for such economic experiment: weak unions, highly visible industry, industry concentration, lack of

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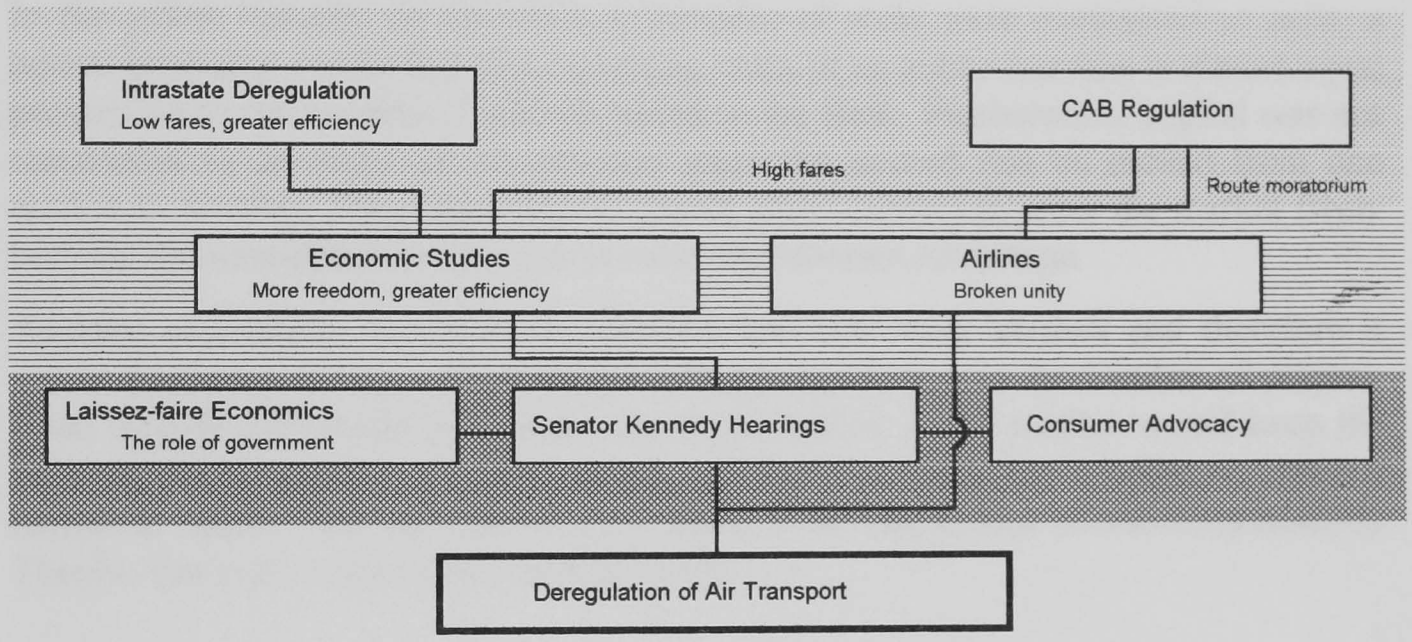
[31] Ralph Nader was a lawyer that wrote a critical book about the Convair automobile. Although the book was not particularly well sold it put forth the important conclusion of producer's social responsibility. In a congressional hearing on automobile safety where Mr. Nader was a witness it became apparent that General Motors had had Mr. Nader followed and researched. This led to an appology by the president of GM. Following the incident Mr. Nader brought a lawsuit against GM on the basis of the company having invased his privacy. The lawsuit was settled out of court for $425,000, of which a part was used to establish the Center for the Study of Responsive Law. The Center has become one of the most effective consumer watchgroup on all kinds of issues, including Air Transport. Its importance is though first and foremost to bring the consumer welfare in the forefront in corporate America.

[32] Liberalism originated with John Smith and David Hume, in the late 18th and early 19th century. It holds that the government should not interfere with the individuals, as they are better informed than the government on what is best for their welfare. In their spirit Milton Friedman the Nobel prize winner in economics, maintains that government should not regulate industries but enforce anti-trust laws.

economies of scale and a successful example of deregulation results in California. In fact, carriers operating in the 'liberalised' states of California, Texas and Florida, were offering very competitive service at fares below the prevailing rates in the rest of the United States. Not only were carriers like Southwest and Pacific Southwest Airlines (PSA) more efficient, but they enlarged the markets they entered due to low fares, as it attracted wider clientele than the regulated high fare carriers.[33]

Furthermore, regulators had assumed that fare levels would drop as a result of the introduction of large wide-body aircraft due to lower cost per seat. This did not, however, occur and load factors only dropped due to the increased capacity provided by these aircraft.

Figure 3-1 Variables Affecting US Deregulation



3.2.1 The Role of The Civil Aeronautics Board

A lack of unity against reform played an important role in making deregulation possible, not only among airlines but also within the Civil Aeronautics Board (CAB).[34] The CAB had lacked the ability to provide the public with low fares on interstate routes compared to what had prevailed in the deregulated states of California and Texas. The reason was the CAB's inclination to protect the profitability of the airlines and to maintain 'optimal' route network.

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[33] Oum, T. H., Stanbury, W. T. and Tretheway, Airline Deregulation in Canada and Its Economic Effects, Transportation Journal, Summer 1991, p. 6.

[34] In June 1977 President Carter nominated Alfred E. Kahn as the new Chairman of the CAB, but he was one of the leading proponents of airline deregulation. At the same time Elisabeth Bailey was nominated as a board member leading to a Board of three that supported Kahn, leaving only O'Melia to represent the previous views. Kahn began to deregulate on his own on the assumption that he was acting in the public interest and could therefore act without formal legal reform. At the same time the Congress and Senate had differing views of deregulation; the senate for legal reform but against noise control and subsidies, while the Congress was interested in the noise and subsidy issue but not the Deregulation bill.

The Board sensing the changed atmosphere was prior to the economist Alfred Kahn's nomination to head the CAB, increasingly lenient toward some regulatory reform, although not for full deregulation. Under CAB's chairman John E. Robson, the CAB presented its own ideas of regulatory reform 'the monitored regulatory reform' in 1976. The Board would, however, not find comfort in freeing up entry and exit on trunk passenger routes. Regardless of this opposition the Board had in fact consented that regulatory reform was imminent and thus jumped on the bandwagon that would eventually run the CAB over. When Kahn was nominated following John Robson's departure, the Board's attitude was fully converted to free market philosophy.

3.2.2 The Economic Basis of Deregulation

In the airline industry no operating economies of scale were considered to exist, a notion grounded on the fact that operating costs of an airline increase in almost equal proportion to the number of aircraft added to the fleet. Furthermore, capital was not considered to be sunk, as the physical plant the aircraft can be moved from one market to another. These two factors would allow carriers to enter the market freely because the incumbents would not possess any inherent advantage.

Another assumption was that the industry had low entry barriers and therefore it would be driven to more competition through an increase in the number of players. Even though this would not occur, the contestability of the market would keep the existing players striving to lower prices and increase efficiency in order to create a barrier to entry. As was shown in Chapter 2 on the failure of the Contestability Theory, this was oversimplification of reality.

3.2.3 Changing Ideas on The Role of Government

An other root of deregulation were the changing ideas about the role of government. This ideas advocated by economists like Friedrich Hayek, Ludwig von Mises and Milton Friedman, emphasised 'laissez faire'[35] or 'hands off' economics, but these state that competition can take the place of government regulation in a more efficient way. Thus, serving the consumer better in the long run by allowing firms to gain flexibility through the freedom to explore ways to maximise profit, taking into account only the limitation of generally accepted ethics and general law in society.

Economic studies in the early 1960s and 1970s criticised as well the necessity to regulate the airline industry, the leading reformists Levine[36] and Jordan[37] reported on the efficiency achieved in the deregulated California market; Keeler[38] concluded that

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[35] Mises concludes in an article that Laissez faire means: 'let the individual citizen, the much talked-about common man, choose and act and do not force him to yield to a dictator.', Ludwig von Mises, Planning for Freedom, Libertarian Press 1980, p. 49.

[36] Levine, Michael, Is Regulation Necessary? California Air Transportation and National Regulatory Policy, The Yale Law Journal, Vol. 74, 1965. pp. 1416-1447.

[37] Jordan, W. A., Airline Regulation in America: Effects and Imperfections, Johns Hopkins Press, 1970.

[38] Keeler, T.E.,1972, Airline regulation and market performance. Bell JOurnal of Economics, 3, 1978, pp. 399-424.

regulation diluted any profits derived from CAB's fare system due to excess capacity; Douglas and Miller[39] suggested a competition model that showed more efficiency in terms of capacity control if fares were not regulated. DeVany[40], however, reported that regulation was actually in the consumer interest as fares where set close to the output maximising level. Keeler[41] in a later study reported that CAB's regulation was costing the passengers $2.7 billion in excess charges per year.

An article by Michael Levine summarised well the academic attitude on air transport regulation, but he stated that:

> **Regulation of United States air transportation is predicated upon erroneous economic assumptions and results in unnecessarily high fares, disguised in efficiencies (such as premature replacement of equipment) and a lack of diversified service.[42]**

It was, however, president Gerald Ford's pressure on Congress to establish a National Commission on Regulatory Reform in order to restore the public faith in government after the Watergate incident that pushed deregulation ahead. The commission was never formed but the issue was raised and Senator Edward Kennedy initiated hearings in 1975 that prepared successfully the political basis for the United States Air Transportation Deregulation Act.

3.2.4 Full Deregulation

The regulatory reform was greater than originally anticipated by reformists. Marcus concluded that if the resistance would have been industry wide, deregulation would never have occurred. However, as the airlines felt disadvantaged by government policies the resistance collapsed and full deregulation became a reality:

> **When firms feel disadvantaged by government policies, when they perceive that competitive advantage can be won through eliminating government restrictions, and when they believe that they are well positioned to take advantage of policy change, then they become a destabilizing force both within their industry and in the large political arena. Under these conditions, they seem to be willing to forego government protection no matter what the likely consequences or the surprises that may be in store for them under more competitive conditions.[43]**

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[39] Douglas, G. W., and Miller, J. C., Economic Regulation of Domestic Air Transport: Theory and Policy, Brookings Institution, 1974.

[40] DeVany, A. S., The Effect of Price and Entry Regulation on Airline Output, Capacity and Efficiency, Bell Journal of Economics, 6, 1975, pp. 327-345.

[41] Keeler, T.E., Domestic Trunk Airline Regulation: An Economic Evaluation, Studies on Federal Regulation, U.S. Senate Committee on Government Affairs, Washington 1978.

[42] Op. cit. (Levine, 1965), pp. 1416-1447.

[43] Marcus, Alfred A., Airline Deregulation: Why the Supporters Lost Out, Long Range Planning, Vol. 20, No. 1, p. 97.

United[44] was the first airline to disrupt the unity of US airlines against regulatory reform when its chairman Edward E. Carlson gave the following statement before Congress:

> **United could be comfortable with total deregulation.... In a deregulated environment, United could make the business judgements as to market opportunities and management would have to live with the financial results. Under the existing regulatory climate, we do not have these opportunities.**[45]

The main reason for this pro-deregulation attitude by United may have been that it was not allowed to expand during the low growth period from 1969 until the statement was given, a period referred to as the route moratorium.[46]

3.3 The Deregulation Act

The United States Civil Aeronautics Act was passed in 1938 and established the Civil Aeronautics Authority that became the Civil Aeronautics Board (CAB) in 1940. The Airline Deregulation Act was signed on October 28, 1978. It had number of provisions one of which was to deregulate gradually and protect small communities. The main elements of the Deregulation Act, were: (i) To establish the freedom of any carrier fulfilling safety requirements to enter markets, and for any carrier to exit a market; (ii) to establish the freedom to compete on the basis of price by abolishing any price regulation; and (iii) to provide and protect small community air service through subsidies.

CAB's authority was eliminated gradually with regard to economic regulation, according to the following schedule: (i) Dormant route authority and then all authority over routes would cease by 1981; (ii) limited fare authority until 1983;[47] and (iii) limitation of merger approval.[48]

Then in 1985 the CAB was dissolved according to a 'sunset clause' in the Act, and its remaining functions moved to the Department of Transportation.

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[44] To understand their position one must reckon that from 1969 the CAB had put all domestic route awards on hold. See: L. Keyes, A Survey of Route Entry Awards by the CAB, 1969-74, Kennedy Hearings Vol. 4, 2545-48.

[45] Regulatory Reform in Air Transportation, Hearings before Subcomm. on Aviation of Sen. Committee on Commerce on S.2551, S.3364, and S.3536, 94th Cong. 2nd Sess., 1976, pp. 532 and 534. The testimony of Edward E. Carlson.

[46] The route moratorium is a phrase that appeared in the Kennedy hearings due to an alleged freezing of the route network since 1969, due to low traffic growth. No airline had, in fact, been assigned new routes since then.

[47] Air Carriers could reduce their fares up to fifty percent without CAB's approval and raise fares up to five percent per year in competitive markets.

[48] The CAB could only approve mergers if the anti-competitive results are less than the transportation need and no-less anticompetitive alternative is available.

3.4 Regulation Developments Since The Deregulation Act

3.4.1 Computer Reservation Systems

It is important to note that the bias of CRS's has been reduced through the years, lessening its impact on new-entrants. The following section will try to evaluate the changes and their effects at different time periods. First, prior to CAB's 1984 CRS regulation; second, from 1984 until the introduction of the Competition Enhancement Act of 1992; and third, post 1992.

Before 1984 the CRS's were seriously biased in favour of their owners (hosts), especially on the actual display itself as can be observed in Table 3-1. In 1984 the CAB issued rules that corrected this display biases to a certain extent. Nevertheless, the system's hosts still benefited from their ownership in terms of proportionally more bookings than non-host airlines. This has been termed as 'incremental revenues.'[49] That are generated by a combination of 'architectural bias'[50] and travel agents' (TA) identification with the CRS's host airline, termed as 'halo effect'.

In 1984 the CAB issued regulation in order to deal with unfair CRS practices. The regulation addressed four main issues:

(i) **Prohibited 'bias' in the listing of airline schedules on CRS screens. This prohibition prevented CRSs from continuing the practice of displaying the schedules of the airline owning the CRS above the schedules of other airlines.**

(ii) **Required CRS owners to charge all airlines the same 'booking fee' for listing their schedules and issuing tickets through the CRS. Prior to this prohibition, CRS owners were charging airlines different fees, sometimes related to the extent to which an airline competed with the CRS owner.**

(iii) **Prohibited CRS owners from leasing CRSs to travel agents for terms of more than five years. The intent of this rule was to furnish more opportunities for competition in marketing CRS systems to travel agents.**

(iv) **Prohibited CRS owners from requiring that a travel agent use a particular CRS system exclusively. This provision was also intended to promote CRS competition.**[51]

The alleged biases left in the CRS's after the passing of the 1984 regulation and directly affect new-entrants, are shown in the table below.

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[49] Incremental revenues are defined as 'added revenues resulting when agents using CRSs book more travel on the airline owning the CRS than the agents would normally make on that airline.

[50] Architectural bias is it called when every function of the CRS is not open to all participants in the system. 'Functional Equality' is the term used to describe a system where all functions of the system are equally open to all participants.

[51] Hearing on the Airline Competition Enhancement Act of 1992, Before the Subcommittee on Aviation of the Committee on Public Works and Transportation House of Representatives, June 18, 1992, p. 2.

Table 3-1 Sources of CRS's Display Bias[52]

Individual carrier identity	Displaying flights/fares for carrier YY ahead of those for carrier XX by means of over-ride of other display priority parameters. Displaying fares for carrier YY in addition to those for carrier XX whenever fares for carrier XX are requested.
Carrier's status of participation in the system	Because carrier XX is not a co-host, not enabling any enhancements for carrier XX through the system. Similarly, because XX is a participating carrier: a) excluding from the display flights by carrier XX that compete with those of carrier YY, connecting flights by carrier XX.
Priority given to on-line transfer	Displaying carrier YY/YYconnection ahead of carrier XX/ZZ or XX/YY connection despite other inferior connection parameters for the former. Where the connection is domestic/international , a wholly domestic carrier or a foreign international carrier loses display priority.
Code-sharing	Carrier XX and carrier ZZ making agreement for designation of carrier XX/ZZ connection as carrier XX/XX to retain priority under above parameters.
Dual-listing	If code-sharing then using also separate, additional listing (using different flight parameters if necessary to avoid detection) of carrier XX flight for local traffic purposes.
Restriction on display of fares	Limiting the number of classes of service types of fare which may be listed (in some instances fewer classes have been available for participating carriers than for a vendor carrier).
Change of gauge without change of flight number	Retention of single flight number where a change of aircraft is required en-route in order to achieve display priority. This practice can also lead to dual or multiple listing where there are several feeder services for a long-haul service with the same flight number.
Departure time, arrival time, length of flight time	Falsification of flight schedules by carriers, individually or jointly, to achieve display priority.

Some of the more important sources of bias left in the CRS's after the 1984 regulation were 'functional differences,'[53] some of which can be seen in Table 3-2. Two of those most commonly cited are last-seat availability and 'autovalidation'. Last-seat availability has been cited as one of the causes for TA's to prefer the host carrier, as last-seat availability has not been available through the primary display of some CRS's. That requires the TA to spend time to enter 'direct-link' with the non-host carrier. This has even failed due to 'connection interference's' causing the booking to fail although the TA is in good faith that it actually went through to the non-host's system. Therefore, TA's often feel less secure to use this cumbersome facility in view of the consequences for the passenger. The second source of bias is autovalidation that has to do with the host carrier receiving initially the whole ticket amount when multi-segment ticket is issued on two or more carriers. The usual rule is that the validated carrier should be the first segment or longest segment carrier. On some CRS's the system will autovalidate on the CRS's host carrier if it is carrying the passenger on any segment of the trip, unless the TA validates the ticket on a specific carrier.[54]

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[52] Computer Reservation Systems: More international, more complex, more intense debate, The Avmark Aviation Economist, May 1987, 19.

[53] Equal functionality is when the CRS does not cause a travel agent to book its customers on an airline that it, otherwise, would not have selected.

[54] Apollo made provisions to eliminate autovalidation on their system in 1993.

Table 3-2 Sources of Complaints About Market Manipulation of CRS's[55]

Control of participation	Outright refusal to accept a (foreign) carrier as a participant, or acceptance only under unduly burdensome or discriminatory conditions.
Control of sales information	(i) Manipulation of a participating carrier's fare and flight information to that carrier's disadvantage.; (ii) Evaluation of and response to a competing carrier's revised schedules and fares before they are officially announced.
Control of marketing information	Information generated through a CRS exclusively available to vendor or sold only at excessive fees (including, for example, data to identify travel agents who might be induced to direct their business away from competing carriers or analyses of reservation patterns with a view to amending tariffs).
Control of reservations policy	Reservation for flights on routes where vendor is a dominant or monopoly carrier conditioned upon use of the same carrier wherever available for any other segments of the journey.
Control of ticket validation	Designation of vendor as validating carrier on all tickets or on any ticket containing a coupon for that carrier (whether first coupon or not) in order to achieve improved cash flow.
Control of system enhancements	'Last-seat' availability or advance issue of boarding passes available only for vendor carrier.
Inequitable access fees	(i) Through inequitable allocation of costs amongst vendor, participating carriers and travel agents; (ii) through fee structures that vary amongst participating carriers; (iii) through excessive fees for enhancement facilities.

Even though bias could be eliminated from the computer reservation systems, it is likely that *incremental revenue* will be present, unless the systems will be fully de-hosted. The opportunities left to the host airlines are still numerous.

The host airlines feel that since the CAB eliminated the bias which created much of the incremental revenues for the host, compensatory rates for booking on on-host flights had to be introduced. Furthermore, they feel that architectural bias is not the reason why TA's choose to book some carriers more than others, but rather the commission overrides offered by the host airlines.

If that is the case there is a much less interest by the regulator to regulate such practices as they are generally considered to be a part of the normal business relationship between the TA and the airline. McNamara senior-VP at American Airlines stated in a hearing before congress that:

> **CRS systems do not cause travel agents to book customers on a particular airline; overrides do.**[56]

Certain CRS owners have included in their CRS agreements with TA's, clauses that 'tie' the owner's commission levels to the CRS usage. These clauses are actually purposefully created to prevent the TA to install more than one CRS system in the agency. Even though the agent wished to provide its customers with extra service by installing software that biased the display by showing more airlines, or lowest fares across or shortest possibly itinerary. They were not able to do so as the CRS

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[55] Op. cit. (Computer Reservation Systems), p. 20.

[56] The Airline Competition Enhancement Act of 1992, Hearing Before The Subcommittee on Aviation, of the Committee on Public Works and Transportation, House of Representatives, 102nd Congress, 2nd session on H.R. 5293, June 18, 1992, p.13. This extract from the courts finding was quoted by Anne H. McNamara Senior VP Administration and General Counsel, American Airlines.

agreements usually contained a clause prohibiting the use of third party software on the basis of technological incompatibility. This further reduced the new-entrants' chances of being listed advantageously on the basis of low fares or direct flights.

Airlines and travel agents felt increasingly uneasy towards the CRS hosts ability to control competition leading to a suit against American and United. The plaintiffs alleged that the CRS's hosts were taking advantage of their dominant position. The Court of Appeals ruling brought about under the Sherman Anti-trust Act, stated that:[57]

> **Airlines generally subscribe to every CRS because the CRS's charge the airline per booking. The $1.75 fee to secure a booking is of little consequence because a $300 or $400 fare may otherwise be lost. This is not to say that a CRS can charge its airline subscribers any fee that it desires, no matter how high. Basic economic theory tells us that an airline will withdraw from the CRS if the cost of using it causes the marginal cost of providing a flight booked on the CRS to exceed the marginal revenue gained by the booking.**[58]

This ruling rejected completely the notion that hosts misused their position, on the grounds of how low their booking fee was as a portion of the total ticket price.

Congressional Subcommitttees, on the other hand, felt the need to take a close look on the CRS dominance and in 1992 a bill on 'airline competition enhancement' was presented to the US Congress to amend the Federal Aviation Act of 1958. The bills' purpose was:

> **...to enhance competition among air carriers by prohibiting an air carrier who operates a computer reservation system from discriminating against other air carriers participating in the system and among travel agents which subscribe to the system, and for other purposes.**[59]

The reason for the bill was that even though the hosts advantage of display bias had been eliminated, TA's still booked majority of comparable flights on the CRS's host airline. This has been traced to the hosts capability of controlling the booking behaviour of the TA's through architectural bias, which is the structural and programming features of the system that still makes it more convenient for the TA to book with the systems host airline. The bill was not passed but initiated regulation by the US Department of Transportation regarding CRS's.

In order to substantiate this the United States' Department of Transportation analysed the substance of incremental revenues and found that:

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[57] This was a 1989 trial in the Federal District Court in California involving among others Northwest and Alaska against Sabre and Apollo's host airlines American and United. The court found no antitrust violations and the plaintifs appealed the judgement. See (91 Daily Journal D.A.R. 13279) and U.S. Supreme Court of denied certiorari (112 S. Ct. 1603 , 1992)

[58] Op. cit. (Airline Competition Enhancement Act of 1992), pp. 24-25. Testimony by Anne H. McNamara.

[59] Op. cit. (Airline Competition Act of 1992), p. 1.

> **... airline revenues in 1986 were about 14 percent higher for United and 15 percent higher for American because of incremental revenues. These were only moderately lower than the estimates of incremental revenues for the pre-rule period.[60]**

This finding indicates that the CRS's are still benefiting the host and therefore placing the non-host members of the system at a disadvantage. Although this host disadvantage has not been fully explained it is nevertheless still there after the CAB's ruling on display bias. A likely explanation as mentioned before, are the commission overrides link-up with the host's CRS.

Another important aspect of the CRS issue is the importance of the systems revenues and profits which the CRS owners can attribute back into the airline's operation to buy aircraft, international routes, slots and not the least withstand fare wars.[61] In this regard it can be alleged that the CRS's have had major importance for American's and United's growth and other carriers demise. As the CRS's profitability information is not readily available, various estimates have been constructed: The US Department of Transportation estimated that in 1988 based on older data, adjusted annual rate of return for Apollo was approximately 50 to 55 percent and 75 to 90 percent for SABRE.[62]

Table 3-3 indicates roughly the profit of the largest systems. If profits and incremental revenues[63] are added together it is clear that the CRS's contribution to American and United has been of major importance in their growth and competitive position in the market.

Following numerous congressional hearings on CRS's bias, the hosts have started to remove most of the alleged sources of bias. SABRE has for example stated that it has removed all differences in order to make the system 'absolutely identical' in every respect to each participant. This identical treatment will, however, in many instances come at a cost as in some systems there are number of service levels at different fee levels. Thus, the higher the service the higher the fee.[64]

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[60] Pre-rule meaning before the CRS regulation was introduced in 1984. Prepared Statement by John H. Anderson, associate director, transportation Issues at the General Accounting Office, before Congress on the Airline Competition Enhancement Act of 1992, June 18, 1992.

[61] This has been possible by the hosts as the CRS's have been run as departments within the host airlines, rather than as separate companies. As a result there has been discussion about a possible requirement of 'de-hosting' of CRS's. Some of the small CRS's are de-hosted, but the large ones COVIA and SABRE are still hosted.

[62] Op. cit. (Airline Competition Enhancement Act of 1992), p. 17. The testimony of Jeffrey N. Shane assistant secretary of transportation for policy and international affairs U.S. Department of Transportation. Note that this estimate is not reliable as an estimator for current profitability.

[63] In a study by DoT reported in May 1988, it was estimated that in 1986 the halo effect from the two largest CRS's SABRE and Apollo increased revenues by 40 and 36 percent respectively and incremental revenues increased revenues likewise by 15 and 14 percent. See: U.S. Department of Transportation, Study of Airline Computer Reservation Systems /DoT-P-37-88-2, May 1988).

[64] Op. cit. (Airline Competition Enhancement Act of 1992), p. 28.

Table 3-3 CRS's Profit Estimation 1988 to 1991[65]

Year	*SABRE*	*COVIA (Apollo)*
	Net operating margin %	Before tax profits $(mill)
1988	16.9	na
1989	16.2	90
1990	14.1	32
1991	13.9 (110 million profit)	15

Note: Other financial information for this two main systems is not available.

The CRS issue has clearly hindered the new-entrants in two important ways. First, in in the way of host advantage based on biases and airline ownership of the largest CRS's. Second, due to the revenue which the CRS's have generated for their hosts and stipulated their staying power.

3.4.2 Advertising

Under deregulation advertising has become an issue as some airlines have tended to emphasise the short-term benefit from capturing the customer's attention through deceptive advertising knowing that a certain percentage of those that make contact will accept the 'true' value of the product even though it was described differently in the advertisement.

The DoT in judging airline's adherence to Section 411[66] of the Federal Aviation Act follows a 'Statement of General Policy' Part 399.80, that lists the following as a breach of the code of conduct in airline advertising: (i) Misrepresentation of the quality of service type or size of aircraft, departure times, points served, number of slots, and total trip time; (ii) misrepresentation of fares and charges; and (iii) misrepresentation of discounts stating that they are available when they are not.

Furthermore, Part 399.84 states that advertisements which state a lower fare than is actually charged to the customer as an unfair deceptive practice, but this practice was often used by the incumbent's when new-entrant entered a market offering lower fare than prevailed. In addition non-inclusion in advertising of code-sharing when present, which is considered a deceptive or unfair practice, as the passenger may not realise unless notified that there may be a carrier or equipment switch enroute. This discriminates effectively against a direct service new-entrant.

To address these and other issues the DoT applies to airline advertising standards that constitute allowed practices: (i) Taxes can be listed separately as long as they are included in the advertisement; (ii) fares can be advertised as one-way even though round-trip ticket is required to receive the advertised fare; (iii) restrictions on fares must be listed in the advertisement; and (iv) if a low fare is advertised a 'reasonable' number of seats must be made available at that fare.

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[65] Op. cit. (Airline Competition Enhancement Act of 1992), pp. 24-25.

[66] Section 411 of the Federal Aviation Act states that the FAA has the duty to: '...investigate and determine whether any air carrier, foreign air carrier, or ticket agent has been or is engaged in unfair or deceptive practices or unfair methods of competition in air transportation or the sale thereof.'

Items (ii) and (iv) are the most controversial ones. It can be alleged that an advertisement citing fare for one way but requiring round-trip to receive the fare, to be purely misleading. Furthermore, 'reasonable' number of seats is not defined any further for item iv leading to no carrier's breach of it since the code of practice was initiated.

The DoT has found two main complaints on behalf of airline customers regarding advertising; (a) lack of availability that deals with item (iv); and (b) lack of adequacy of disclosure about restrictions on fares, that deals with item (iii).[67]

It is clear that the enforcement of the advertising standards is beneficial for the new-entrant, by reducing barriers to entry.

3.4.3 Merger Regulation

It became an issue in the deregulation process that the industry might become concentrated. In order to keep the checks and balances in mergers and acquisitions the CAB was given control over mergers and agreements according to a standard set forth by the Bank Merger Act.[68] Under section 408(b) of the Deregulation Act the Board: (i) shall approve a merger, unless it finds it not consistent with the public interest, but (ii) shall not approve a merger if (following section 7 of the Clayton Act) the effect of the merger may be substantially to lessen competition or to tend to create a monopoly; unless (iii) the anti-competitive effects of the merger are outweighed in the public interest by its probable effect in meeting significant transportation conveniences and needs of the public, and less anti-competitive alternatives are not available.[69]

Section 414 dealt with the exceptions from the antitrust laws and states that the Board:

> **...may excempt any person affected by its order from the operations of the antitrust laws...**

Furthermore the CAB:

> **...may not excempt such person unless it determines that such exemption is required in the public interest.[70]**

When the Act's Sunset Clause was effected the supervision of mergers and agreements along with antitrust immunity was transferred to the Department of Justice (DoJ) under supervision from the Department of Transportation. On January 1, 1989 the Department of Justice took full charge of domestic-airline-antitrust

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[67] Airline Advertising Reform Act of 1991, Hearing before the Subcommittee on Aviation of the Comm. on Publ. Works and Transp., H. of Repr., 102nd Congr., 2nd session on H.R. 5124. pp. IX to X.

[68] See 12 U.S.C. section 1828 (c) 5, and (5) and Section 1842(a).

[69] Summary as presented in, Lowenfeld, Andreas F., Aviation Law, 2nd ed. Matthew Bender, 1981, Section 4.27, p. 4-70.

[70] See Section 414 of the Airline Deregulation Act of 1978.

issues. The Department of Justice has been considered to take a tougher stand on airline mergers and CRS issues than the DoT. The DoJ blocked the proposed deal between USAir and Eastern on Eastern's Philadelphia gates and the Toronto route, in view of USAir's dominant position at the airport and it being Eastern's main competitor on the route. Furthermore, it opposed the Sabre-Datas II joint venture, leading to its cancellation that resulted in Datas II merger with Pars. In February 1991 the DoJ blocked United's bid for Eastern's slots and gates at Washington National on the basis of Sherman's Section 1, as the proposed sale had a less anti competitive alternative, namely Northwest becoming the eventual buyer of the package.

3.4.4 Bankruptcy Law

Chapter XI of the US bankruptcy law has played a role in the structure of the US airline industry, reason being the protection against creditors it provides. In fact, such protection has major influence on the cost structure of the carrier involved, allowing it to compete by offering lower fares. In reality Chapter XI is a way for a bankrupt carrier to remain in possession of its assets under court supervision, while it attempts to reorganise. If the carrier can gain approval for its reorganisation plan, the carrier can emerge from bankruptcy, if not it will enter Chapter 7, that means full liquidation under the control of a trustee.

The loophole in the bankruptcy law allowing bankruptcy in order to lower cost structure was closed in 1984 following the heavily criticised bankruptcy of Continental Airlines, allegedly for the sole purpose of breaking unions at the airline in order to lower costs.

3.5 Industry Behaviour Following Deregulation

3.5.1 Financial Condition The Airline Industry

The financial health of the US airline industry deteriorated rapidly from 1979. Table 3-4 shows the net results of all scheduled US airlines from 1979.

Table 3-4 Scheduled Airlines' Net Profit 1979 - 1992[71]

Year	*Profit ($000)*	*Year*	*Profit ($000)*
1979	346.845	1987	593.398
1980	17.414	1988	1.685.599
1981	(300.826)	1989	127.902
1982	(915.814)	1990	(3.921.002)
1983	(188.051)	1991	(1.869.974)
1984	824.668	1992	(2.419.743)
1985	862.715	1993	2.350.173
1986	(234.909)	1994	1.391.181

[71] Financial Condition of the Airline Industry, Hearings Before the Subcommittee on Aviation of the Committee on Public Works and Transportation House of Representatives, One Hundred and Third Congress, First Session, February 17- 24, 1993.

The table shows that there are three periods of losses 1981 to 1983, 1986 and 1990 and onwards. The reasons for the losses in 1981 to 1983 are usually stated as being the recession and the effects of the air traffic controllers strike (PATCO) which limited access to many airports. Another reason is that low-fare, low-cost new-entrant airlines and the intrastate carriers emerged in the interstate market in 1981, creating disruption in the market equilibrium, especially in 1986.

The loss period of 1986 can be attributed to frequent fare wars and to the debt burden many carriers took on as a result of the many acquisitions and mergers that occurred during that year.

The last period of industry losses has been attributed to: (i) the recession; (ii) the gulf crisis; (iii) over capacity; and (iv) Chapter XI carriers. The recession affected demand for air travel, causing less passenger growth than anticipated (see section 3.5.6 on traffic growth). The Gulf Crisis reduced demand for international air travel affecting the domestic demand as well. The traffic growth was high in the mid-eighties causing, the majors to place optimistic orders for new aircraft. When these entered the fleet between 1988 and 1992 the growth had levelled off. Thus, the industry's largest carriers suddenly found themselves with about 300 additional aircraft in need of passengers, in 1993. The Chapter XI carriers have allegedly forced yields down due to their protection from creditors and the resulting reduction in debt payments. This association is, however, disputed as the non-bankrupt carriers may emphasise strategic attacks on the bankrupt carriers in order to undermine their financial well-being and prevent them emerging from bankruptcy. In either case the result is going to be poorer overall profit performance.

As the years have progressed the operating expenses per ASK declined, due to cost saving measures of the airlines, especially by trimming labour and salaries, along with other cost saving measures like fuel efficient aircraft, two pilot aircraft and increased homogeneity of the fleet.

Table 3-5 Financial Indicators of Major US Carriers

	Operating expense per ASK				*Operating Revenue per ASK*			
Airline	*'78*	*'84*	*'92*	*'94*	*'78*	*'84*	*'92*	*'94*
American	0.085	0.081	0.068	0.067	0.088	0.087	0.068	0.069
United	0.065	0.075	0.071	0.060	0.070	0.081	0.068	0.062
USAir	-	0.105	0.088	0.084	-	0.119	0.082	0.078
Delta	0.072	0.091	0.073	0.066	0.079	0.097	0.068	0.065
Northwest	0.108	0.073	0.069	0.068	0.117	0.076	0.066	0.074
TWA	0.110	0.079	0.068	0.067	0.113	0.080	0.060	0.062
Pan Am	0.079	0.079	-	-	0.084	0.076	-	-
Continental	0.068	0.062	0.060	0.062	0.072	0.069	0.058	0.062

Source: Compiled from Air Transport World '79 - '95. All figures are in 1994 dollars.

3.5.2 The Economic Environment

From Table 3-6 one can see that in 1980 to 1982 jet fuel prices increased by 65 percent at the same time when the Consumer Price Index (CPI) rose 16.3 percent. The effect of this is hindering of growth and increased costs. In 1986 the economic indicators show favourable environment and high traffic growth, but losses occurred, nevertheless, due to heavy merger activity and the resulting debt burden and inefficiencies. In 1989 jet fuel prices rose again by 46.5 percent in 1989 and 1990.

At the same time the CPI started to rise again, while interest rates offset the cost increase by going down from 1991 to 1993 by 68.2 percent.

Table 3-6 Economic Trends Since Deregulation

Year	*Consumer Price Index All Items*[1]	*%*	*Consumer Price Index Public Transportation*[2]	*%*	*Jet Fuel Prices Index of Cost Per Gallon*[2]	*%*	*US Discount Rate Index Middle Rate*[4]	*%*
1980	100.0		100		100	53.0	100.0	
1981	110.2	10.2	124.1	24.1	106.5	6.5	92.3	-7.7
1982	116.9	6.1	137.6	10.9	112.3	5.4	66.3	-29.2
1983	120.6	3.2	144.2	4.8	99.2	-11.6	66.3	0.0
1984	126.1	4.6	153.1	6.2	88.9	-10.4	62.4	-5.9
1985	130.6	3.6	160.0	4.5	92.8	4.4	58.5	-6.3
1986	133.0	1.8	169.5	5.9	64.4	-31.6	42.8	-26.7
1987	137.9	3.7	175.4	3.5	64.7	0.4	46.7	9.0
1988	143.6	4.1	178.6	1.8	61.9	-4.3	50.5	8.3
1989	150.5	4.8	187.5	5.0	70.4	13.7	54.4	7.7
1990	158.6	5.4	206.4	10.1	90.6	28.8	50.6	-7.1
1991	165.3	4.2	215.5	4.4	78.8	-13.1	27.2	-46.2
1992	170.3	3.0	219.2	1.7	76.1	-3.4	22.8	-14.3
1993	175.4	2.9	na	na	68.8	-9.7	22.8	0
1994	179.9	2.6	na	na	64.9	-4.8	36.0	58.0

[1,2] Source: Bureau of Labour Statistics, US Dept. of Labour. [3] Prices are annual domestic average except 1983, which is December price. Source: ATW 1979 - 1993. [4] Source: Federal Reserve Board.

3.5.3 Industry Fare Structure

From 1981 until 1983, 22 new jet operating carriers emerged causing the incumbents to react with lower fares although they had not shed the extra weight of the regulatory era. It is apparent if one examines Table 3-7, that as early as 1981 competition had already reached high levels, both in terms of the percentage of markets with discount fares offered and in reduction of fares measured in terms of discount fare as a percentage of couch fare. Little reduction occurred in fares from 1981 until 1984 with the exception of the top 100 markets, where there was a slight reduction. In other smaller markets there was rather a tendency to raise fares as the table shows.

Table 3-7 Fare Discounts Pre and Post Deregulation

	Percentage of markets with discount fares			*Average discount fare as a percentage of couch fare*		
Market rank	1976	1981	1984	1976	1981	1984
Top 50	69	95	96	78	63	61
51-100	60	92	90	80	67	63
101-150	36	82	84	80	70	72
151-200	39	86	80	80	72	77
Smaller markets	30	81	72	80	74	76

Source: Meyer, J.R., and Oster, C. V., Deregulation and the Future of Intercity Passenger Travel, Cambridge MIT press, 1987.

3.5.4 Market-share

The linkage between market-share and profitability has been established by Buzzell and Gale[72] in their work on 'Profit Impact of Market Strategy' (PIMS). The reason

[72] Buzzell, Robert D., Gale, Bradley T., The PIMS Principles: Linking Strategy to Performance, The Free Press, Macmillan 1987.

behind this linkage is not, however, fully known. Buzzell and Gale mention four possible underlying factors: (i) Economies of scale; (ii) risk aversion by customers; (iii) market power; and (iv) a common underlying factor. A common underlying factor between ROI and market-share could be competent management.[73]

Table 3-8 Market Share by Airline: Enplanements at All Airports 1979-91

Airline %	*79*	*80*	*81*	*82*	*83*	*84*	*85*	*86*	*87*	*88*	*89*	*90*	*91*
Incumbents													
Alaska	-	-	-	-	-	-	-	-	1.1	1.1	1.2	1.3	0.6
Aloha	1.0	1.0	1.0	0.9	0.7	0.7	0.7	0.7	0.4	0.4	0.5	0.5	0.3
American	10.0	9.0	9.2	10.0	10.4	10.7	11.6	11.8	12.8	14.4	16.1	16.0	16.9
Braniff I	4.6	4.2	3.9	1.4	-	-	-	-	-	-	-	-	-
Continental	3.2	2.9	3.1	3.5	3.4	3.5	4.5	5.2	9.3	8.6	8.1	7.9	8.5
Delta	12.9	13.4	12.9	12.2	12.2	11.9	11.2	10.5	12.6	13.8	15.8	14.8	17.1
Eastern	13.8	13.8	13.2	12.7	12.3	11.9	11.7	10.9	10.7	8.4	3.4	5.0	.2
Frontier	2.1	2.1	2.3	2.1	2.1	2.2	1.9	1.2	-	-	-	-	-
Hawaiian	1.2	1.2	1.1	1.1	0.9	0.9	0.9	1.1	0.8	0.8	0.8	0.6	0.6
Northwest	3.7	4.0	4.1	4.1	4.2	4.1	4.1	5.2	8.3	7.7	8.4	8.7	9.1
Ozark	1.3	1.3	1.5	1.6	1.6	1.6	1.6	1.1	-	-	-	-	-
Pan Am	3.0	5.3	5.0	4.4	4.7	4.4	3.7	3.2	2.4	2.8	3.1	3.1	2.2
Piedmont	1.8	2.0	2.7	3.1	3.9	4.5	5.1	5.9	5.5	5.8	3.6	-	-
Republic	1.9	4.1	6.2	6.5	5.9	4.8	4.9	3.8	-	-	-	-	-
Texas Intern.	1.4	1.5	1.4	1.2	-	-	-	-	-	-	-	-	-
Trans World	7.3	7.1	6.7	6.4	6.2	5.8	5.8	5.1	5.7	5.7	5.7	5.4	4.9
United	11.4	11.3	10.6	11.8	12.6	12.8	10.7	13.0	13.0	13.1	12.6	12.7	13.9
USAir	4.5	5.0	5.0	5.3	5.4	5.3	5.4	5.6	5.6	7.1	9.7	13.0	12.5
Western	3.9	3.4	3.4	3.6	3.7	3.3	3.3	3.1	.7	-	-	-	-
New-entrants													
Air Wiscon.	-	-	-	-	-	-	-	-	0.3	0.4	0.3	0.3	-
AirCal	0.9	1.0	1.3	1.2	1.2	1.3	1.3	1.3	-	-	-	-	-
America West	-	-	-	-	0.1	0.8	1.4	1.8	2.5	2.8	3.0	3.5	3.9
Braniff II	-	-	-	-	-	-	-	-	.8	1.2	1.2	-	-
Midway	-	-	-	-	-	-	-	-	1.0	1.1	1.2	1.6	1.2
People Expr.	-	-	0.3	1.0	2.2	3.7	4.1	3.4	-	-	-	-	-
PSA	2.8	2.1	2.3	2.6	2.7	2.5	2.5	2.8	2.3	.5	-	-	-
Southwest	1.7	2.4	2.9	3.3	3.6	3.8	3.7	3.3	3.3	3.6	7.2	4.5	5.1
Tot. ind. enpl.	311	287	270	277	301	320	357	390	348	352	350	355	347
HHI	767	782	758	764	784	764	731	758	888	923	1031	1045	1158

Source: Maldutis, Julius, Airline Competition at the 50 Largest US Airports - Update, Salomon Brothers, United States Equity Research: Airlines, July 7, 1992. Omitted squares are for years when the airline was not operating.

It is fairly well established by economists that economies of scale are virtually non-existent in air transport although other scale efficiencies do exist as was covered in Chapter 2. Risk aversion is based on the customer's tendency to select a product he firmly knows and feels comfortable with. Market power is nested in the ability to bargain more effectively with suppliers of services and products. These findings do hold in air transport as large market-share at one airport has usually created strong bargaining position of an airline.

[73] Op. cit. (Buzzell), p. 73.

Table 3-9 Percent Increase in Market Share by Airline Based on Enplanements All Airports, 1980-91

Airline	*80* %	*81* %	*82* %	*83* %	*84* %	*85* %	*86* %	*87* %	*88* %	*89* %	*90* %	*91* %	*Avg*
Incumbents													
Alaska	-	-	-	-	-	-	-	-	0	9.1	8.3	-54	-9.2
Aloha	0	0	-10	-22.2	0	0	0	-43	0	25	0	-40	-7.5
American	-10	2.2	8.7	4.0	2.9	8.4	1.7	8.5	12.5	11.8	0	5.6	4.7
Braniff I	-8.7	-7.1	-	-	-	-	-	-			-	-	-7.9
Continental	-9.4	6.9	12.9	-2.8	2.9	28.6	15.5	78.8	-7.5	-5.8	-2.5	7.6	10.4
Delta	3.9	-3.7	-5.4	0	-2.5	-5.9	-6.3	20	9.5	14.5	-6.3	15.5	2.8
Eastern	0	-4.3	-3.8	-3.1	-3.3	-1.7	-6.8	-1.8	-21.5	-59.5	47.0	-	-5.3
Frontier	0	9.5	-8.7	0	4.8	-13.6	-36.8	-	-	-	-	-	-6.4
Hawaiian	0	9.1	0	-18.2	0	0	22.2	-27.3	0	0	-25	0	-3.3
Hughes Airw	18.7	-	-	-	-	-	-	-	-	-	-	-	18.7
Northwest	8.1	2.5	0	2.4	-2.4	0	26.8	59.6	-7.2	9.1	3.6	4.6	8.9
Ozark	0	15.4	6.7	0	0	0	-31	-	-	-	-	-	-1.3
Pan Am	76.7	-5.7	-12	6.8	-6.4	-15.9	-13.5	-25	16.7	10.7	0	-29	0.3
Piedmont	11.1	35	14.8	25.8	15.4	13.3	15.7	-6.8	5.4	-37.9	-	-	9.18
Republic	15.8	51.2	4.8	-9.2	-18.6	2.1	-22.4	-	-	-	-	-	3.4
Texas Intern.	7.1	-6.7	-14.3	-	-	-	-	-	-	-	-	-	-4.6
Trans World	-2.7	-5.6	-4.5	-3.1	-6.5	0	-12.1	11.8	0	0	-5.3	-9.3	-3.1
United	0	-6.2	11.3	6.8	15.9	-16.4	21.5	0	0.1	-3.8	0.1	9.4	3.2
USAir	11.1	0	6.0	1.9	-1.9	1.9	3.7	0	26.8	36.6	34.0	-3.8	9.7
Western	8.7	0	5.9	2.8	-10.8	0	-6.1	-	-	-	-	-	-3.1
New-entrants													
Air Wiscon.	-	-	-	-	-	-	-	33	-25	0	-	-	2.7
AirCal	10	30	-7.7	0	8.3	0	0	-	-	-	-	-	5.8
America W.	-	-	-	-	na	75	28.6	38.9	12	7.1	16.7	11.4	27.1
Braniff II									50	0			25.0
Midway	-	-	-	-	-	-	-	-	10	9.0	33.3	-25	6.8
People Expr.	-	-	-	70	120	68.2	10.8	-17.1	-	-	-	-	50.4
PSA	-25	9.5	13.1	3.8	-7.4	0	12.0	-17.9	-	-	-	-	-1.5
Southwest	41.2	20.8	13.8	9.1	5.5	-2.6	-10.8	0	9.1	100	-37.5	13.3	13.5
Tot. ind. enpl.	-7.7	-5.9	2.6	8.6	6.3	11.6	9.2	-10.8	1.1	0	1.4	-2.2	1.2
HHI	2.0	-3.1	0.8	2.6	-2.5	-4.3	3.7	17.2	3.9	11.7	1.4	10.8	

Source: Maldutis, Julius, Airline Competition at the 50 Largest US Airports - Update, Salomon Brothers, United States Equity Research: Airlines, July 7, 1992.

Airports that have become 'hub' airports usually experience downgrading of their bond ratings as risk is considered to have increased.[74] This is based on the fact that if a dominating hub airline leaves the airport or fails the airport will be seriously harmed. As a result the airport authorities may go into great lengths to avoid any such disastrous developments by giving concessions to the dominant carrier in the form of protection from competition and airport fee reductions under special circumstances. This ability of US airports is based on their private or county rather than government ownership. Market power is, therefore, conclusively a major force in the US air transport market.

[74] Doganis, Rigas, The Airport Business, Routledge 1992, p. 202.

The link between ROI and market share does not exclude small market-share businesses. Studies in the PIMS data base show that such businesses can reach high ROI if they offer high relative quality, narrow product lines and low total costs.[75]

Table 3-8 shows that the market-share of the largest six carriers went from 45.7 percent in 1979 to 78.0 percent in 1991. This is a considerably concentration, creating an effective barrier to entry at major airports.

Rapid increase in market-share at airports appears to be related to failure as all the airlines listed in Table 3-9, having 8 percent annual growth or greater on the average have failed or been acquired, with the exception of USAir that is, nevertheless, having serious financial problems. It is only Southwest that has above 8 percent market-share on the average and has not had financial problems or failed. Other failed carriers with lower overall average market-share increases have also had sudden increases in market-share for one or more years. For example, AirCal increased its market-share by 40 percent in 1980-1981; Republic by 51.2 percent in 1981; Eastern by 47.0 percent in 1990; Midway by 33.3 percent in 1990. Such sudden increases can often be explained by the airline in question, acquiring another carrier.

The general rationalisation of the alleged relationship between failures and fast growth and sudden growth in market-share, can be that the cost of gaining such increase is greater than the benefit it provides. First of all the acquisition of slots, terminal facilities and promotion costs of entering new markets can put a great strain on the airline's financial resources and cash-flow in particular. The same can be said about the acquisition of an other carrier in order to gain market-share, not mentioning the organisational strain it creates while staff functions and route networks are being merged.

3.5.5 Capacity

Over-capacity is one of the factors cited as the reason for losses in the early nineties. The following table shows the average capacity offered and the resulting average load-factors. It is worth pointing out that average load factors have not declined, but increased during the period. This implies that if over-capacity was present that capacity was being utilised well by the traveling public, probably due to lower fares being offered.

Table 3-10 US Airline Capacity 1980 - 1994

Year	*Total RPK (000 000)*	*Industry LF*	*% Change RPK*
1980	415179	59.1	-
1984	503792	57.5	21.3
1988	708140	63.9	40.6
1992	794903	63.0	12.3
1994	896213	65.1	12.7

Source: Air Transport World.

[75] Carolyn Y Woo. and Arnold C. Cooper, 'The Surprising Case for Low Market Share', Harvard Business Review, November-December 1982, pp. 106-113.

To test whether lower fares contributed to the increase in load-factors, Table 3-11 was constructed in order to show operating profits per available seat kilometre.

It is clear that as capacity increased dramatically at the incumbent carriers they tried to increase loads by lowering fares. This led to poor operating profit for all the incumbent carriers in 1992. In 1994 American, United and Northwest had reached profitability again, while USAir, Delta and TWA had not. The implication of this situation for new-entrants is that market entry is problemsome unless the incumbents can be avoided, but at the same time aircraft are readily available lowering the equipment barrier to entry. These points will be discussed further in Chapter 6 and 7.

Table 3-11 US Incumbent Airlines' Operating Profit Per ASK 1978 - 1994

	Operating profit per ASK (US Cents Per ASK)			
Airline	*'78*	*'84*	*'92*	*'94*
American	0.003	0.006	0.000	0.002
United	0.005	0.006	(0.003)	0.002
USAir	-	0.014	(0.006)	(0.006)
Delta	0.007	0.006	(0.005)	(0.001)
Northwest	0.009	0.003	(0.003)	0.006
TWA	0.003	0.001	(0.008)	(0.005)
Pan Am	0.005	(0.003)	-	-
Continental	0.004	0.007	(0.002)	0.000

Source: Compiled from Air Transport World '79 - '95. All figures are 1994 prices.

Table 3-12 shows that the three largest majors added capacity out of line with passenger growth trends, but in the period from 1988-1992 the number of revenue passengers grew by 4.4 percent, compared to 30 percent in the four preceding years. The reason may have been the tendency to optimism during the growth period in the mid-nineties and long lead-times in aircraft delivery from manufacturers at the time.

Table 3-12 Increases in Capacity by Carrier 1988 - 1992

Airline	*Percent change 1988 - 1992*
American	37
Delta	43
United	25
All others	-6
Total industry	8

Source: Financial Condition of The Airline Industry, p. 19.

At any rate the large majors were more optimistic than the smaller carriers, as the latter group reduced their capacity, while American, Delta and United added 35 percent. Much addition of capacity during low growth periods increases rivalry in the market, reducing the viability of entry of new carriers.

3.5.6 Traffic Growth

The air transport industry is recognisable cyclical because both leisure passengers and to lesser extent business passengers tend to cut travel expenses during a recession. A survey of North American business travellers reveals that although air fares for

business passengers are up, annual costs incurred by corporations per staff traveller have decreased by 7.1 percent from 1988 until 1990.[76] Thus, for a large segment of the leisure market, travel is basically a luxury and for many businesses during recession, travel is one of the cost areas affected by a cost cutting program.

Table 3-13 Growth in US Airline Traffic 1982 - 1994

Year	*Rev. Pass (000)*	*% Chg*
1982	294.102	2.8
1983	318.638	8.3
1984	344.683	8.2
1985	382.022	10.8
1986	418.946	9.7
1987	447.678	6.9
1988	454.614	1.6
1989	453.692	-0.2
1990	465.557	2.6
1991	452.210	-2.9
1992	516.038	14.1
1993	531.390	2.9
1994	576.439	8.5

Source: Air Transport World '82-'95.

As fuel prices came down from 1983 to 1986 with only slight increase in 1987 the average growth was 8.2 percent during the period. In 1989 fuel prices rise again along with the Consumer Price Index that rose from 1.8 in 1986 to 3.7 in 1987, to 5.4 percent in 1990, with slight reduction in 1991 to 4.2. These effects caused reduced traffic growth, with the Gulf Crisis in 1991 causing further reduction. After 1991 the traffic picks up fast with 14.1 percent growth in passenger haulage (see Table 3-6). These increases are attributed, as mentioned before, to fare wars caused by too much capacity in the industry.

3.5.7 Hub and Spoke Route Networks

Hub and spoke route networks have had a major impact on the air transport industry following deregulation, creating perhaps the greatest barrier to entry. To begin with it is important to define what constitutes a hub. A hub is defined as:

> **...a pattern of simultaneous arrivals followed by simultaneous departures at any airport, such that a passenger from any arriving flight can connect to any departing flight within a reasonable period.**[77]

The FAA definition of a hub differs considerably from the one above:

> **...air traffic hubs are geographic areas, and are based on the percentage of total passengers enplaned in the area.**

Hub airports are classified into four types by the FAA, large hubs, medium hubs, small hubs and non-hubs. The FAA definition does not take into account the hub and spoke ideology of the traffic arriving and leaving in banks. Therefore, one can not use the 'hub' concept as defined by the FAA in the same context as that used by the

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[76] Julie Barker, Super Savers, Successful Meetings, part 1, Vol. 39, Iss. 10, Sep. 1990, pp. 152-154.

[77] US airlines hubs and spokes, Travel and Tourism Analyst, August 1986, p. 30.

airlines in their strategic planning. In this section we will use the hub concept meaning that traffic is scheduled in banks.

One of the advantages of a hub network is the reduction of the number of linkages necessary to tie the destination nodes in the network. It requires n(n-1) linkages to provide direct flights between the destinations served (n). If, however, a hub is used the linkages are reduced for the destinations served by the hub to (n-1). Furthermore, the hub allows for the operation of larger aircraft with lower seat-mile costs as the geographical catchment area for passengers is much larger for a hub operation than direct service. This boosts load factors allowing more frequency on thinner routes and larger aircraft on high density routes as mentioned before.

An important feature of an hub location is the size of the local market that will be captured by the dominant hub carrier. What is more the hub carrier if in a dominant position can charge relatively higher fares for passengers originating or terminating their journey at the hub airport.[78]

The hub strategy of the major carriers after deregulation was primarily geographic and market-share driven. A carrier well located in the Eastern United States, wishing to gain market-share in the Western part would develop a hub in that region in order to build a market-share. Another way would be to gain instant market-share by acquiring a carrier already operating a hub in the area, just like People Express did with the acquisition of Frontier, gaining a hub location in Denver.

Hub and spoke strategies can be divided into three phases since deregulation; (i) one or two hub strategy prior to 1986; (ii) multi-hub strategy from 1986 to 1992; and (iii) hub consolidation from 1992 to date. The main problem with the one or two hub strategy was the inability of the hub airport to accommodate constant growth in air traffic and the provision of adequate number of peak hour flights. As a result, the hub airports became overly crowded causing inconvenience to the passenger. This reason and the carrier's wish for geographic expansion led to the construction of secondary hubs. By that action the carrier relieved some of the pressure on the main hub and reduced the inconvenient transfers and lengthy routes for part of their passengers, increasing the passenger's incentive to use the carrier.

As the major carriers concentrated on building large hubs during the early deregulation years they withdraw from direct markets causing their market-share to decline, and other carriers like new-entrants and commuters would fill in the gaps and gain. When the strategy changes and the majors started to establish medium to small size hubs the leeway for new-carriers was drastically reduced.

The inefficiencies of hub operations are substantial in terms of less fleet utilisation due to the aircraft arriving and departing in blocks. Thus when the hub airport becomes large the time period it takes each block to arrive and leave becomes larger,

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[78] An Antitrust suite was brought against American, Continental, Delta, Midway, Northwest, Pan Am, TWA, United and USAir over conspiration to fix prices through to and from hub cities, through a CRS. The airlines lost the case and a $364 million antitrust fund was created from which passengers can claim vouchers in order to get discount off selected flights with the above carriers, provided the passenger made a trip with one of the above named carriers through one of the 34 named hub cities.

thus, creating inefficiencies both in terms of fleet utilisation and passenger waiting time. This may explain the economies experienced by Southwest's direct flights, where fleet utilisation is high compared to the hub airlines.

New-entrant's scope of operations is of course limited by the geographical distribution of other carrier' hub locations and route networks. Thus, it is important to visualise where each major carrier's domain lies: United's main hubs are Chicago, Denver, San Francisco and Washington's Dulles, this leaves the carrier with geographical coverage in the north-east, mid-west and west, but less coverage in the south; American's main hubs are in Chicago, Dallas, Miami, Nashville and Raleigh/Durham, leaving only the west poorly covered; Delta has probably the largest geographic coverage of any US carrier with main hubs in Atlanta, Cincinnati, Dallas and Salt Lake City; USAir has emphasised the Eastern US in their hub strategy leaving the mid-west and west without hubs; Continental has its main hub in Texas Houston and Newark as a result of the People Express take-over, Denver is its mid-western hub leaving the western US uncovered; Northwest's hub strategy is centred around Detroit, Memphis, Boston and Minneapolis.

Table 3-14 Hub Market-Shares

Airline	*Hubs*	*1981*	*1986*	*1991*
		%	*%*	*%*
United	Chicago	32.87	44.56	48.43
	Denver	27.40	44.20	46.76
	Los Angeles	20.05	18.05	20.81
	Portland	35.37	27.39	23.73
	San Francisco	29.60	35.59	47.50
	Seattle	24.61	25.19	24.04
	Washington - Dulles	27.68	24.68	67.18
American	Chicago	21.44	28.05	35.10
	Dallas	38.09	62.71	62.17
	Miami	1.68	2.99	39.22
	Nashville	21.18	44.70	76.17
	Raleigh/Durham	0	4.71	81.94
Delta	Atlanta	51.21	54.08	86.97
	Cincinnati	39.75	46.79	87.79
	Dallas	15.63	22.78	30.99
	Memphis	42.72	16.35	9.66
	Salt Lake City	3.98	1.81	84.19
Continental	Cleveland	0	4.74	43.18
	Denver	23.15	30.57	36.83
	Houston	14.44	61.91	80.49
	Newark	4.11	3.07	51.75
Eastern	Atlanta	39.81	39.25	35.15 [a]
	Newark	24.55	11.14	4.17 -
	New York La Guardia	31.59	29.01	13.60 -
	Raleigh/Durham	45.62	14.67	3.01 -
	Miami	40.72	48.40	16.57 -
Trans World	New York - Kennedy	24.04	26.84	28.99
	St. Louis	45.28	63.16	71.76
USAir	Baltimore	17.87	10.49	66.97
	Charlotte	0	1.03	95.53
	Dayton	18.18	5.43	75.97
	Indianapolis	22.64	28.10	38.67
	Philadelphia	20.70	35.96	53.55
	Pittsburgh	59.79	82.44	89.35
	Washington - National	10.34	13.52	23.61

Source: Compiled from Julius Maldutis, Airline Competition at the 50 Largest U.S. Airports-Update, Salomon Brothers, 1992.

[a] For 1990.

In view of this geographical locations of major hubs there is less coverage by the majors in the south and the mid-west, but in the latter named area Southwest has been strong in the short-haul market. Table 3-14 shows the development in major airline's hub strategies and market-share at each hub location.

3.5.8 The Chapter XI Carriers' Effect on The Industry

Chapter XI carriers can operate for extended periods depending on the time it takes to negotiate a reorganisation plan, sometimes for years. Such carriers face pressure to maintain cash-flow in order to cover day to day operating costs. Therefore, they may lean on fare discounting in order to maintain adequate demand levels, as many passengers might otherwise avoid flying with a bankrupt carrier.

A way to raise working capital through other means than stimulating demand through low fares, is the so-called 'debtor in possession' (DIP) protection of lender to a Chapter XI company. Under the scheme the injection of loans is encouraged through special protection scheme whereas priority for payment ahead of other creditors is guaranteed by law. America West secured loans from Northwest and Guinness Peat Aviation through DIP. In fact the scheme has in some cases induced a financially troubled carrier to declare bankruptcy in order to secure much needed loans only available under DIP. This is what is alleged to have happened in the case of Pan Am and Midway. Pan Am needed cash and was negotiating a short-term loan, but the financial institution involved would not provide the loan unless the carrier declared Chapter 11 bankruptcy, in order to secure the loan under the DIP scheme. Similar situation occurred with Midway that could only secure a $25 million loan upon bankruptcy declaration. The problem with this development for the airline and the financier is that the airline's image and cash-flow is lessened causing sudden drop in income. This is due to the fact that many passengers and travel agents avoid booking with bankrupt carriers. Therefore, one can assume that this inducement to file for bankruptcy to be actually seriously negative to the carrier involved but a secure short-term option for the creditor involved, as he will recover his investment as far as there are assets to cover the secured loan.

Chapter XI bankruptcy as a management tool originated with Continental's bankruptcy in September 1983. The purpose of the bankruptcy that was allegedly unnecessary due to $60 million cash reserves and non-default on loans, was primarily to resolve a labour dispute. The bankruptcy was utilised as an instrument to re negotiate all labour contracts allowing the carrier to lower its cost structure instantly. The loophole in the bankruptcy law allowing this type of an bankruptcy incentive was closed in 1984.

A further development in bankruptcy as a management tool was the so called 'pre-packaged' bankruptcy, where the airline arranges for DIP financing and reorganisation plan before declaring bankruptcy, in order to reduce the bankruptcy period and increase the carrier's chances of emerging.

An important question of the whole bankruptcy issue is whether bankrupt carriers seriously bias the competition structure by fare cutting fuelled by their protection against creditors and therefore lower cost structure. The large Chapter XI carriers,

America West, Continental and Trans World had among them 18 percent of the industry traffic in 1992. The former president of America West M. J. Conway stated in 1993 that the effect of the Chapter XI carriers was overstated as the bankrupt carriers do not gain any advantage of the bankruptcy as the effect will not be positive on operating costs. Furthermore, the carriers will have to pay for large portion of their costs up-front in cash. In addition, he stated that the stigma of bankruptcy will bleed off traffic.[79] It may be precisely this traffic bleeding that has made it so difficult for bankrupt carriers to emerge from Chapter XI. The reason being that the passenger takes a perceived risk by travelling with a bankrupt carrier.[80] In order to make the customer willing to undertake such risk the fare must be attractive. Therefore, it is clear that Chapter XI carriers have to offer attractive fares to maintain the necessary cash-flow, to pay off the up-front costs of running the airline from day to day and to keep up the demand.

3.5.9 Concentration

Mergers and bankruptcies, most of which occurred in 1986 caused the prevailing concentration in the US air transport. This has led to controversy as to the benefit of deregulation to the consumer and the airlines. In general the view appears to be that the industry has become more concentrated as a result of deregulation, although, competition has increased in terms of number of carriers serving each of the high density routes (See Table 2.2). Table 3.15 shows the increase in concentration since deregulation both in terms of number of airlines achieving more than 1% total market-share measured in terms of enplanements at the 50 largest airports and the Herfindahl index that measures concentration at airports. Both of these indicators show that concentration has increased substantially since deregulation. Although this trend may be reversing for the reasons stated in the section on hubs and spokes.

Table 3-15 Number of Airlines that Achieved 1 Percent Market-share or Greater in The US Market[81]

	79	*80*	*81*	*82*	*83*	*84*	*85*	*86*	*87*	*88*	*89*	*90*	*91*
Airlines	25	22	22	22	21	21	21	21	20	19	18	16	15
HHI	2224	2243	2198	2248	2462	2455	2562	2757	3187	3352	3443	3605	3904
Total enplane-ments(m)	311	287	270	277	301	320	357	390	348	352	350	355	347

Airlines with more than 1 percent market-share were 25 in 1979 but only 15 in 1991, at the same time when total enplanements increased from 310.8 million to 346.5 million with the largest peak in 1986 when they reached 389.7m. The Herfindahl-

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[79] Op. cit. (Financial Condition of the Airline Industry), p. 643. The testimony of M. J. Conway, America West.

[80] Using a credit card reduces this risk as credit card companies will not honor payments to bankrupt carriers for unused tickets. Travel agents can also validate the tickets on an other carrier in order to delay the payment to the bankrupt carrier and therefore reduce the risk of the passenger in case the carrier goes under within three or four weeks, which is the processing time of the payment through the validated carrier.

[81] Op. cit. (Maldutis), p. 4.

Hirschman index (HHI) shows the increased concentration as the weighted average for the 50 largest airports increased from 2.224 in 1979 to 3.904 in 1991.[82]

The purpose of mergers in deregulated air transport markets is to: (i) gain instant access to markets that would otherwise take considerable time to grow into organically; (ii) eliminate a competitor; (iii) increase debt in order to create a buffer against a hostile take-over; (iv) to gain a competitive tool like a computer reservation system; (v) gain economies of scope, information and density, in order to create a barrier to entry or enhance the ability to fight off a competitive threat; (vi) build critical mass in order to enhance the staying power of the airline in a fierce competition.

It is important to contrast mergers that are the result of an attempt to salvage the leftovers of a bankrupt airline against those that have the sole purpose of gaining the advantage of a system that will improve competitive status considerable. In fact there is little reason for courts to block a merger of a bankrupt carrier as such an act can cause 'social harm' to those employees that would otherwise keep their jobs. It is rather the period prior to bankruptcy of a carrier that needs to be analysed in order to filter out the effects of predatory actions for the purpose of driving a carrier into bankruptcy for the sole purpose to overtake it or simply eliminate it.

The application of post deregulation competition tools, as mentioned before, (yield management systems, CRS's, hub and spoke systems, for etc.) by the incumbents influenced the many mergers and acquisitions that occurred in 1986. The year was characterised by over capacity and fare wars that had serious effect on profitability, especially in regard to the new-entrants that had less critical mass and therefore less staying power.

Table 3.16 shows large mergers that occurred in 1986, but four of these involved new-entrants. All were taken over by the incumbents with the exception of People Express's brief take-over of Frontier. The new-entrants taken-over were People Express and the former intrastate carriers AirCal, PSA and Republic airlines.

Table 3-16 Large Mergers of US Airlines in 1986[83]

People Express	With	Frontier
Texas Air	with	Eastern and People Express
American	with	Air California
Delta	with	Western
Northwest	with	Republic
TWA	with	Ozark
USAir	with	Pacific Southwest Airlines

Sawers states that as profitability fell in 1985 companies 'with high costs, large debts or uncompetitive services were encouraged to seek safety in the arms of stronger firms'. Furthermore, he finds that these factors explain the disappearance of Eastern, Western, People Express and Frontier. [84] It must be noted that People Express is an

[82] HHI above 1800 indicates high concentration, while HHI below 1000 indicates low concentration.

[83] David Sawers, Competition in the Air, IEA, 1987, p.32. People Express was added to Sawers list.

[84] Op. cit. (Sawers), pp. 32-33.

exception on some of the points stated by Sawer as it had the lowest cost per ASM of any carrier in 1985.

3.5.10 Market Behaviour

Market behaviour during deregulation has been characterised by heavy discounting and wider spread between business and discount fares. The use of controlled fare offerings has become the norm, meaning that airlines use close-out days and limited seat offering at the lowest fares. In order to stimulate sales and minimise the TA's lost revenue on heavy discount ticket sales, the carriers have developed sales incentives usually linked to sales volume at distribution, as is explained in Section 3.4.1.

The airlines have emphasised the business travel segment heavily in order to maximise yields and to subsidise the heavily discounted fares for the leisure market. This trend has been upset by the advent of the fax-machine, tele-conferencing and computer networking that has caused ever increasing number of businesses to question the high costs of business travel. This trend became clear during the Gulf-crisis when number of big corporations restricted travel of their employees for safety reasons and introduced to themselves a way to save costs without reduction in productivity. Furthermore, as the airlines have been involved in fare wars and perhaps 'excessive' discounting in order to force a competitor to leave a market, they have placed increasing importance on increased yield from the business market. The president of the US National Business Association, J.H. Hintz states that:

> **In view of cost considerations, business travel is no longer inelastic or insensitive to pricing..... Traditional airline practices have taken business air travel for granted and have forced business [travellers] to subsidise leisure travel.**[85]

There is a clear trend that airlines are increasingly under the scrutiny of the business community and especially by corporation travel managers that push for increased discounts. Therefore, it is becoming a problem for some of the airlines to subsidise unrealistic pricing decisions at the low end of the market by increasing or maintaining present fare levels aimed at the business market, without loosing passengers.

3.5.11 Quality of Service

Most complaints filed are on flight related problems, baggage mishandling and customer service, in that order. In 1983 just to take an example, flight problems were 26.5 percent, baggage complaints 16.3 percent and refund problems 14.9 percent.

Table 3-17 and Table 3-18 show trends in complaint rates from 1978. The 1979 increase can be explained by an industry wide decline in on time performance and the

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[85] Op. cit. (The Financial Condition of the Airline Industry), p. 414. The testimony of H. Hintz, on behalf of the National Business Travel Association.

CAB's efforts to make it easier to file complaints.[86] As on-time performance improved the complaints declined. The high increase in complaints in 1987 through 1988 can be attributed to airport congestion at hub airports causing delays and missed connections. The congestion at the hub airports during these years has been explained by the havoc in scheduling caused by the high merger activity during 1986. In addition, unrealistic scheduling was an important factor, escalated by carriers attempts to tamper with scheduling in order to gain better CRS display position. If one examines the complaint rates of individual airlines one can see that the airlines at the bottom of the list were all having labour disputes due to cost-cutting programs or mergers if not both. Eastern had serious union fights, Northwest suffered from merger problems affecting labour and organisation, just as Continental that had serious customer service disputes as their record shows. The reason for the high rise in Hawaiian's customer complaint rates were problems with a new international service. A biasing factor resulting in higher complaint rates during 1987 could be much publicity of service problems in the period. After 1988 the complaint rate drops considerable indicating smoother operations at all airlines filing.

Table 3-17 Incumbent Airlines' Consumer Complaints 1978 - 1991

	Complaints per 100.000 passengers													
Airline	*'78*	*'79*	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*Avg.*
Aloha	1,88	2,12	1,08	0,84	0,82	0,41	0,26	0,12	0,25	0,46	0,93	0,30	0,32	0,43	0,73
Alaska	0	0	0	2,34	0	0,61	0,55	0,51	0,72	1,49	1,25	0,88	0,59	0,48	0,94
Delta	1,87	2,21	1,41	0,90	0,79	0,70	0,65	0,66	0,56	2,19	1,38	0,72	0,55	0,47	1,08
Piedmont	4,84	5,42	2,91	1,33	1,23	0,68	0,64	0,68	1,04	2,97	1,80	0	0	0	2,14
Hawaiian	2,21	1,61	1,55	1,35	1,04	0,67	1,44	1,55	2,93	8,44	7,34	4,19	2,34	1,68	2,74
Republic	0	6,40	5,28	2,63	2,02	1,34	0,73	1,33	2,18	0	0	0	0	0	2,74
Frontier	6,76	5,14	3,44	1,84	1,35	1,00	1,59	1,14	0	0	0	0	0	0	2,78
USAir/All	5,68	8,94	5,03	3,46	1,97	1,09	1,22	1,50	1,38	3,51	2,12	2,16	1,26	0,63	2,85
American	5,90	10,0	5,68	2,89	2,29	1,31	1,09	1,33	1,39	3,84	2,07	1,22	1,04	1,42	2,96
Ozark	5,73	9,27	4,95	1,99	1,12	0,90	0,93	0,73	1,06	0	0	0	0	0	2,96
United	3,67	7,95	3,62	2,28	2,10	1,42	1,70	2,48	2,56	6,60	2,82	1,98	1,37	1,47	3,00
Western	4,29	9,14	4,96	2,08	1,95	1,60	1,65	1,48	1,27	0	0	0	0	0	3,16
Eastern	5,58	6,77	4,51	2,47	1,56	1,35	1,11	1,60	2,42	13,1	10,1	6,48	2,23	0	4,56
Northwest	11,1	8,75	4,90	2,81	2,34	2,27	1,68	1,69	2,67	18,6	6,21	1,95	1,33	0,98	4,81
Continental	5,63	8,69	5,27	2,69	1,55	5,93	3,89	4,21	3,56	24,6	11,9	3,29	2,09	1,21	6,04
TWA	9,84	12,3	11,8	6,60	5,15	3,33	3,69	3,35	4,13	12,4	7,80	5,31	5,63	4,46	6,84
Pan Am	12,8	16,2	13,0	8,91	4,61	3,60	3,95	5,04	4,64	13,0	9,50	0,81	3,91	3,89	7,42
Braniff I	6,17	14,4	9,45	4,42	6,18	0	0	0	0	0	0	0	0	0	8,12
Texas Int'l	6,40	10,6	13,0	6,55	0	0	0	0	0	0	0	0	0	0	9,14
Average	5.90	8.11	5.66	3.07	2.24	1.66	1.57	1.73	2.05	8.55	5.01	2.44	1.89	1.56	4.17

Source: Air Transport World '79 - '92.

The importance of examining complaint's rates is related to the hypothesis that good service breeds success and bad service failure. The problem is, however, the causal relationship, namely whether the problems of the carrier lead to poor service or whether the poor service leads to the carrier's problems. In either case it is clear that poor staff-function whether the airline is having problems or not leads to serious problems for the carrier. In fact the overall average for non-failed carriers was 2.14 complaints per 100.000 passengers, compared to 5.28 for failed carriers.

[86] Complaint rates are calculated from filings from the airlines and from DoT data. This way of counting the complaints could incorporate inaccuracy, that is hard to estimate. The complaint rates are nevertheless a indicator of airline service quality and is the only publicly available source.

Looking at incumbent carriers' average complaint rates for each year in comparison to that of new-entrants, shows that complaint rates at new-entrant carriers have declined considerably. This decline is particularly great after the charter based new-entrants Capitol and World terminated their scheduled operations. After 1986 the new-entrants have maintained lower complaint rates than the incumbent carriers, probably due to the incumbents' problems in integrating their route systems after the frequent mergers in 1985-1987 and shake-out in the industry.

Table 3-18 New-entrant Airlines' Consumer Complaints 1978 - 1991

	Complaints per 100.000 passengers											
Airline	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*Avg.*
Regional												
Air Wisconsin										0.22	0.00	0.11
Horizon									0.63	0.11	0.44	0.39
Intrastate												
Air Florida	12.5	8.5	5.21		-	-	-	-	-	-	-	8.74
AirCal	2.12	1.17	0.94	0.46	0.55	-	-	-	-	-	-	1.05
MarkAir										1.84	1.31	1.58
PSA	1.92	0.83	0.81	0.51	0.83	1.03	2.09	-	-	-	-	1.15
Southwest	0.82	0.74	0.37	0.33	0.36	0.46	1.59	1.24	0.81	0.56	0.46	0.70
Start-up												
America West				0.67	na	0.94	3.42	2.24	1.41	1.65	1.76	1.73
Braniff II				1.22	2.20	1.44	4.77	4.14	-	-	-	2.75
Jet America				2.04		3.19	-	-	-	-	-	2.62
Midway				1.45	3.37	1.29	5.83	2.67	1.64	1.42	2.06	2.47
Midwest Exp.											0.00	0.00
Muse				0.55								0.55
New York A				1.40	2.30	4.36	-	-	-	-	-	2.69
People Expr.				2.90	4.54	7.90	-	-	-	-	-	5.11
Charter												
Am. Trans Air							4.81	-	1.28	3.05	1.63	2.70
Capitol	30.8	26.8	28.6		-		-	-			-	28.73
Tower Air									5.29	3.09	4.19	4.19
Transamerica	5.6	5.86	4.34	5.24	2.58	-	-	-	-	-	-	4.72
World	22.3	10.5	3.39	6.11	11.2	18.3	-	-	-		-	11.97
NE Average	10.9	7.77	6.24	1.91	3.10	4.32	3.75	2.57	1.84	1.49	1.32	4.20
Incu. Average	3.07	2.24	1.66	1.57	1.73	2.05	8.55	5.01	2.44	1.89	1.56	4.17

Source: Air Transport World '79 - '92. Empty squares denote non availability of data or that the airline was not operating.

3.6 Conclusion

The environment for deregulation was favourable due to a fading belief in government interference, successful deregulation in California and Texas leading to lower fares than in interstate air transportation, broken unity of airlines due to the route moratorium among other factors, increased influence of the consumer movement and finally the Kennedy hearings that criticised heavily the inefficiencies of the prevailing system.

The Deregulation Act provided for gradual deregulation. In 1984 the CAB was fully terminated and the remaining functions were moved to the DoT. The functions remaining were among other things, the small community subsidy program and the merger approval.

Developments in regulation following deregulation have been primarily in the area of competition enhancement as the incumbent airlines have been successful in

developing tools that have raised the barriers to entry. This regulation has been mainly concerned with CRS, mergers and advertising.

The industry has had three main loss periods since deregulation, 1981 - 1983, 1986, 1990 - 1993. The alleged reasons for industry losses were increases in fuel prices, merger activity and overcapacity.

Concentration has increased since deregulation as in 1979, 25 carriers had 1 percent market share or more at 50 of the largest airports, but in 1991 there were only 15 carriers.

Hub and spoke networks were considered the most important strategic tool of the industry following deregulation. Market-share analysis of airlines shows that those airlines having dominant position on one or more airports were more likely to survive at least for longer periods than those not having such position. In the last few years there has been increased attention on direct service carriers like Southwest as its constant profit performance is better than for most larger carriers. Southwest's efficiency is first and foremost, because of its high fleet utilisation attitude: quick turn-around at gates, direct services, short-haul, high quality service although it is of no-frills type and its gradual growth.

Carriers are sometimes forced into bankruptcy in-order to secure loans from loan institutions that want DIP protection. This often leads to untimely bankruptcy that could have been avoided and therefore the associated drop in demand. Chapter XI carriers operating under protection from the creditors during reorganisation have to offer attractive fares to maintain demand as passengers and TA may circumvent the bankrupt carrier otherwise, but incumbents can just as well initiate fare wars in order to undermine the financial condition of the bankrupt carrier in order to eliminate a competitor.

Quality of service measured in terms of complaint's rates, has increased from 1988, while in 1979 the average rate reached its highest or 8.11 complaints per 100.000 passengers. The period 1987 to 1988 was also poor due to problems in route system integration following the high merger activity in 1985-1987, as well as unrealistic scheduling in order to gain better CRS display listing.

Part II.

New-entrants in The United States Under Deregulation

In this part of the thesis the new-entrant airlines' case under deregulation will be addressed. First, the new-entrants will be identified and their various characteristics. Then the new-entrants' origin and its impact on initial operations and strategy will be analysed. Second, the operating environment of new-entrants will be analysed in terms of barriers to entry and government influence. Third, the operating characteristics of new-entrants will be described in detail. Fourth, the competition reality of new-entrants will be analysed in terms of strategy selection. Fifth, the case of the European Union liberalisation will be analysed in comparison with US Deregulation in order to give a perspective on the difference of the two.

4. The New-entrant Airlines

4.1 Introduction

The purpose of this chapter is to introduce the new-entrants included in the study and briefly discuss why new-entrants failed under deregulation in the context of their origin.

It is necessary to repeat clearly that for the purpose of this study only jet operating carriers have been examined. As a result, airlines formed after deregulation, operating prop aircraft are not included unless such operation developed into jet operations or mixed operations constituting a major jet operation.

4.2 New-entrants' Classification

The thesis is based on a classification of new-entrants that may be less than straight-forward to the reader. First of all, only jet operating airlines are covered in the thesis. Jet operation is different from turboprop operations as it is highly capital intensive and high-cost. Thus for the sake of increasing the comparability only jet operating carriers were selected.

The general definition of a new-entrant in the thesis is as follows:

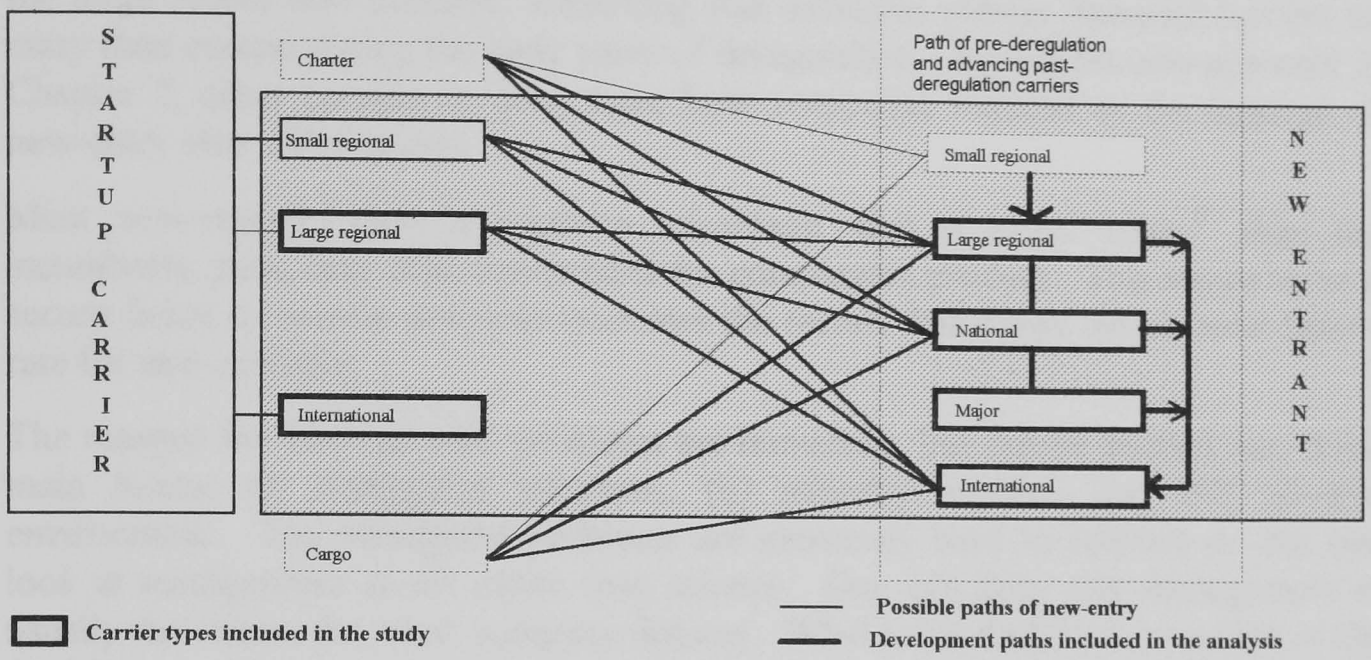
> **A domestic or international airline established after deregulation or liberalisation of a domestic market or bilateral route; or a regional, intrastate, charter or cargo carrier that expanded scheduled passenger operations after the regulatory change.**

The main groups of new-entrants that resulted from the above definition, were: (i) start-up new-entrants; (ii) intrastate new-entrants; (iii) regional based new-entrants; and (iv) charter based new-entrants. There was no new-entrant in scheduled passenger operations that originated from cargo operations.

Figure 4-1, shows the underlying method of grouping the new-entrants and why individual carriers are included in the project. As the DoT classification is based on revenues, a carrier that starts coast to coast service would usually be classified as small regional or large regional during the first operating year. Therefore, a start-up carrier can only advance from that category to small regional and then from there to the other classes. In the study a start-up carrier is not included unless it has operated for one full accounting year, as a prerequisite for inclusion in the questionnaire survey

and three years for inclusion in the failure prediction model. After three years of operations a jet operating carrier has usually advanced to the larger revenue classes.

Figure 4-1 New-entrants' Classification Model



At the beginning of deregulation a new-entrant could have come from the ranks of existing small regionals, from charters or large regionals. New entry is therefore characterised by advancement from a lower class to a larger class with the exception of charters and cargo carriers that are classified as such regardless of size.

The thin lines in the figure show from left to right the direction of new-entrance and the thick lines to the far right, the possible development path of the new-entrant. The reason for including the whole development path from relatively small size to large size is the fact that these are all carriers that derive their existence or ability to expand, on the national or international level.

4.3 Basic Characteristics of New-entrants' Groups

As the Airline Deregulation Act took effect there were five basic shifts in the industry structure: (i) trunk and national carriers entered markets previously unavailable during regulation, (ii) intrastate carriers expanded into the adjacent states or further, (iii) supplemental carriers started scheduled operations, (iv) small regionals expanded to higher density routes, and (v) new airlines emerged.

Most jet-operating new-entrants have been characterised by exceptionally fast growth in their first months and years of operation. Such fast growth shows clearly that consumer markets develop extreme demand if the price is right. Southwest Airlines one of the former intrastate carriers is a clear example of such occurrence as its ultra-low fares cause dramatic increase in demand. The carrier states, in fact, that it is competing with the car rather than other airlines. This statement tells more than many words of the impact low-fare new-entrant carriers have had on air travel in the United States. They, more than anything else, have made it possible for a large

segment of the market to use air travel, that they would, otherwise, not have done at the pre-deregulation fares.

As Chapter 6, will explain in detail, early new-entrants were better capitalised than the more recent new-entrants, something that indicates greater financial barriers to entry than existed during the early years of deregulation. As will become apparent in Chapter 7, other barriers to entry have been somewhat reduced as the upsurge of new-entry after 1992 attests.

Most new-entrants have a common advantage, that is lower costs,[87] than the incumbents, thus, they offer lower fares for comparable product. This seems to be a secure ticket to success until one examines the record that shows almost total failure rate for new-entrants.

The reasons for new-entrants' problems are numerous, but can be divided into three main facets: (i) managerial problems; (ii) industry barriers; and (iii) adverse environment. The managerial problems are extremely hard to address as one can look at management as art rather than science. One can deny that management is usually the reason for most company failures. What most find hard to accept is the fact that management has alternatives in any decision and those decisions shape the companies ability to deal with the environment. So basically a company does not fail due to adverse economic climate or competitors predatory behaviour. Lets examine the latter one. An airline enters a competitor's hub airport and fails as a result. It can claim that the incumbent used predation to crush it. The reason for the failure, though, was the management decision to enter the hub airport in the face of poor legal protection against predation.[88] Hence, the airline took a risk and risk can cause failure, success or everything in-between.

Industry barriers are more obvious and limit the new-entrants options, although, it is management's decision whether to go ahead while a specific barrier is not yet overcome.

Adverse environment can affect the new-entrant negatively if it is assuming a favourable economic climate but encounters a storm This happens frequently when the airline's resources are exceeded so that it can only survive in a favourable climate because management ignores the fact that all economic systems are cyclical by nature.

The study will assume that the airline is a holistic system whose good or bad performance depends on the quality of interaction between its components. The model describing these parts and how they interact can be found in Chapter 1.

4.3.1 Regional Airlines

Under increased pressure in the early forties, to provide increased service to smaller communities the CAB created a level of scheduled service called 'local service'. The

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[87] See for example: Elizabeth Bailey and Jeffrey R. Williams, The Journal of Law & Economics, April, 1988, pp. 191 - 193.

[88] Smaller new-entrants can not even go to court with a perfectly good cause due to the legal costs involved.

resulting 'local carriers' were then subsidised to provide 'essential' service to this communities. In the late fifties, there was a substantial pressure to cut this subsidies in order to reduce the Government deficit. To accomplish this the local carriers were allowed to serve the higher density routes in order to be able to cross-subsidise the thinner ones. This, however, shifted the carriers' focus into the more profitable markets leaving the small communities with the minimum government required service of two flights a day.[89]

As the local carriers started to abandon some of the most unprofitable markets a gap was left for 'air taxis' operating small aircraft. These carriers were not regulated by the CAB and did not receive subsidies from the government. As a result of this development the CAB recognised air taxis as 'third level' 'commuter' carriers in 1969. Consequently, they were allowed to make agreements with the local carriers to take over the most unprofitable routes on the terms of receiving part or all of the subsidy payments meant for the local carrier. To facilitate the commuter service the CAB gradually reduced the restrictions in terms of aircraft size until the passing of the Airline Deregulation Act when these carriers were allowed to fly aircraft up to 60 seats. After the passage of the Act these carriers increased the number of exclusively subsidised routes served, from 112 to 266 out of 316 subsidy points. This shift in commuter carriers' importance governed the change in the name from 'commuters' to 'regionals' in the early 1980's.[90]

Table 4-1 Regional Based New-entrants

Regional carriers	*Entered service*	*Ended service*	*Explanation*
Air Wisconsin	1982[91]	1992	Acquired by United Airlines
Empire	1980[92]	1986	Acquired by Piedmont
Horizon	1981	1986	Acquired by Alaska

Included are only carriers that operated jets to some extent. The table is based on the starting year of jet-operations.

The deregulators in the United States recognised that it was not enough to increase competition between existing carriers but there had to be ample scope for entry of new carriers. This was accomplished through the Loan Guarantee Program.[93] Another no less important aspect was the guarantee of service to small communities for ten years.[94] On the basis of 'essential air service' scheme airlines serving small

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[89] Feldman, Joan, Regional airlines in the USA, Travel & Tourism Analyst, The Economist Pub. Ltd., May 1987. In fact from 1959 to 1963, 128 cities were abandoned by the carriers

[90] Op. cit. (Feldman), p. 16.

[91] Began operations in 1965 and jet operations in 1982.

[92] Started service as Oneida Aviation in 1975, but began F28 jet operations in 1980.

[93] The FAA Loan Guarantee Program existed before the 1978 Deregulation Act but was expanded with the Act's passage to include eligible commuters, intrastate and charter carriers. Each carrier could gain guarantee of up to $100 million for up to 15 years. The program was based on the FAA guaranteeing a loan amounting to 90 percent of the purchase price of aircraft, if the petitioning carrier was unable to secure uninsured loan elsewhere on reasonable terms, given certain provisions the carrier had to fulfil. The results of the program was to make it easier for new-entrants to secure loans at favourable terms.

[94] Bailey, Elizabeth E., Graham, David, R., Kaplan, Daniel P., Deregulating the Airlines, MIT Press, 1985, p. 4.

communities would receive subsidies until 1988. However, in the bill it was made possible for a carrier to bump out an other carrier receiving subsidies, if it could provide the same level of service without the subsidy payments.

Some of the regionals did not make any major changes in their strategy immediately following deregulation. Air Wisconsin for example kept its initial strategy of serving short-haul routes between medium sized communities and major hubs (O'Hare). What changed for Air Wisconsin was the increased competition and faster growth than anticipated. The reason for the accelerated growth was primarily the reduction or suppression of service by United and Republic following deregulation. This development at Air Wisconsin characterises many of the regionals during the early deregulation years. Not only in terms of picking up routes abandoned by the majors but also in starting jet operations with small jets like the BAe 146, BAC-111 or F28, as Air Wisconsin did on short-haul routes from a hub to communities with a population of 100 thousand inhabitants or more.[95]

The third new aspect of deregulation for regionals was their changing status in the CRSs and the resulting shift from interlining to code-sharing with the majors. Many regionals lost their separate image and independence as they secured closer ties with the incumbents, turning them into an extension of the major's image, by becoming a feeder carrier under the major's name; United Express, Continental Express and so forth. Under such scheme the carriers loose control as one can see from the fact that many of these carriers have sold-out to the majors or failed, Air Wisconsin being the largest fatality in this terms. This aspect of their strategy will be discussed further in Chapter 7.

Another route for the regionals was to become a fully independent jet operator. One such carrier Empire Airlines began operations in 1975, operating small prop aircraft. Deregulation, led its founder Paul Quackenbush to steer his regional airline into filling gaps left by the majors in New York State, but deregulation had caused the incumbents to leave many low density routes. As a result, Empire acquired F28's, 85 passenger jets in 1980. Empire became a fully fledged jet operator focusing on hub strategy out of Syracuse to the immediate area, including Canada. Conversely, Horizon Air like Air Wisconsin, selected a strategy in-between, operating a mixed fleet of turboprops and jets.

The regional new-entrants took advantage of deregulation at a slower phase on less grandiose scale than the intrastate and start-up carriers, perhaps due to their existing experience of operating next to the majors. All the airlines listed in Table 4-1 entered jet operations and all failed with Air Wisconsin being the last casualty, acquired and dismantled by United in 1992-1993.

4.3.2 Charter Based Airlines

Shortly after the enactment of the Civil Aeronautics Act of 1938 the CAB issued an exempt order authorising non-scheduled operations. After World War II, this type of operations received a boost with the availability of large surplus war aircraft. As a

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[95] Air Transport World, Sept., 1982. pp. 79-82.

result of increased activity the Board changed the exemption regulation to divide the irregulars into two groups, large- and small irregulars. The change in the regulation prohibited the large irregulars to operate regularly, that is more than 12 flights per month between any two points.

In 1962 supplemental carriers were granted certificates to provide non-scheduled charter services.[96] Due to increased fare competition in the seventies with the trunks, the supplementals entered their decline period that reached its height with the advent of deregulation in 1978.

Charter airlines are heavily depended on tour operators, meaning that the decision to start scheduled operations involves setting up basically all the necessary infrastructure, except flight operations. This has placed the charters in almost a similar situation as any start-up carrier except that the charter has fully operational flight department from the outset. The downside is, however, that the flight equipment is usually long-range wide-body aircraft only suitable on highly competitive long-haul domestic or international routes. Following deregulation the scheduled incumbents exited many unprofitable short-haul routes and increased their emphasis on medium to long-haul domestic routes, limiting the charters' competitiveness even further. As the domestic passenger growth levelled off the incumbents then increased the stress on international routes increasing even further the constraints on the charter based new-entrants.

Table 4-2 Charter Based New-entrants

Airline and origin	*Entered scheduled service*	*Ended scheduled service*	*Explanation*
Charter based carriers			
American Trans Air	1992[97]		Still operating
Capitol	1979	1984	Bankruptcy
Carnival	1988[98]		Still operating
Morris Air	1992[99]	1994	Acquired by Southwest
National Airlines	1993[100]		Still operating ('94)
Tower	1983		Still operating
World	1979	1985	Bankruptcy

The table is based on the starting year and ending year of scheduled operations only.

With deregulation the charters lost a large portion of their market to the scheduled carriers due to reduction in fares on scheduled routes. The logical answer seemed therefore to enter the scheduled market like many charter carriers did. The charters that did not take that route fared poorly and most failed, such as: McCulloch, ONA and Saturn. Evergreen, on the other hand, turned to cargo operations and became successful there. Carriers like Capitol, World, TIA, Transamerica, Tower and American Trans Air, entered scheduled operations and fared differently. Capitol,

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[96] Charters were called supplementals in the United States, but the term 'charter' will be used in this study.

[97] Limited scheduled operations, mostly charter. The carrier did not gain scheduled authority on its own until the date specified in the table.

[98] Established from the assets of Pacific Interstate Airlines.

[99] Started as a charter carrier in 1984.

[100] Started service in 1988 as Private Jet Expeditions.

TIA, TransAmerica and World went soon out of business. Tower with a clear-cut niche market and America Trans Air with sophisticated structure of peripheral businesses have succeeded so far.

All of the carriers that entered scheduled operations strived to maintain their charter base by mixing it with scheduled and cargo operations. Even that strategy did not work readily for the former supplementals, although it can not be said to be the cause of their troubles, rather on the contrary. This mixing of types of operations allowed World, for example, to scale down to the charter base when scheduled operations ran into difficulties.

An important characteristic of new-entrant charter based carriers was much longer stage lengths due to the necessity to be able to offer long distance international flights for tour operators; long-distance holiday markets like Mexico, Virgin Islands, Europe and other popular holiday destinations. It is noteworthy that consumer complaints are high for these airlines as can be seen from table 3.17 in Chapter 3. One possible explanation is the vulnerability of long distance route system to extensive delays throughout the network in the case of mechanical delay, acts of god and ad-hoc charters that are sometimes given priority over poorly booked scheduled flights. Furthermore, these airlines tend to operate both scheduled and charter flights with the same equipment increasing aircraft utilisation but also increasing the possibility of delays.

One of the more recent charter-based new-entrants, Morris Air had considerable initial success, but sold-out to Southwest in 1994. Morris Air was apparently not in financial difficulties as it made $10 million operating profit and $4.5 net profit in 1993. The motivation behind the merger that was initiated by Morris Air may have been sheer profit motive in the face of increased competition from Delta at the Salt Lake City Hub that might have diluted the well-being of the airline. Thus once again a charter-based new-entrant disappeared.

The charters lacked customer recognition and were, therefore, just like any other new airline starting operations in a new market. Furthermore, the charter carriers in the United States were prohibited to integrate vertically and operate tour operating companies. Thus, the advantage of charters over new carriers seems to have been limited to easier access to capital, less preparation time in terms of fulfilling operating regulation as the operation is licensed and ready. In other aspects the charters ran into similar problems of securing an effective distribution system and carving out a niche and protecting it.

4.3.3 Intrastate Airlines

As early as 1946 the state of California had liberal view towards entrance of new airlines in its intrastate market. This lead to 18 new-entrants until 1975 but only 3 remained in service at the end of the period. In 1965, one of the proponents of deregulation, Michael Levine reported that the deregulated market between Los Angeles and San Francisco was benefiting the consumers by the provision of the

lowest 'overland' fares in the world and 300 percent increase in passengers over the period from 1959 until 1965.[101]

The state of Texas had similar liberated views, although, the state controlled entry, but not fares. Southwest had therefore, a substantial advantage in 1978 with the advent of interstate deregulation by having experience with differential pricing, specifically "off-peak" and "peak-pricing". Southwest's advantage was also substantial having experience in low-fare operations, while the competition transferred its emphasis to fare-competition from service-competition after 1978. The idea of Southwest's operations was, nevertheless, not unique as Pacific Southwest Airlines (PSA) began operations in 1949, initiating the low-fare, no-frills concept.[102]

As deregulation came into effect these carriers expanded their services into the adjacent states. The most aggressive in terms of such expansion was Air Florida, that actually cut off its intrastate operations, focusing on domestic and international routes until bankruptcy in 1984.

Table 4-3 Intrastate Based New-entrants

Airline and origin	*Entered service*	*Ended service*	*Explanation*
Intra-state carriers			
Alaska	pre-1978		Still operating
Air California	pre-1978	1987	Acquired by American
Air Florida	pre-1978	1984	Bankruptcy/acquired by Midway
PSA	pre-1978	1987	Acquired by USAir
Southwest	pre-1978		Still operating

The first carrier listed in the table is not included in the analysis in the following chapters.

Of the former intrastate carriers only Alaska Airlines and Southwest are still operating, Air California and PSA were acquired by American and USAir respectively, but Air Florida was acquired by Midway after bankruptcy.

4.3.4 New Airlines

Start-up airlines entered usually on the basis of much lower costs than the incumbents. Thus, being able to offer lower fares. Their entrance strategies have been varied but fall basically into three categories; (i) low-fare, no-frills service; (ii) low fare, full-frills; and (iii) standard fare, premium service. In addition to these there was, of course, a difference in their strategy pertaining to hub operation, point to point or being a feeder carrier. It is apparent that the start-up carriers selecting to operate hub service from an underserved metropolitan airport at the dawn of deregulation experienced explosive growth; People Express, Midway and America West fall into this category. Other carriers experienced less success with premium service carriers at the bottom of the roster.

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[101] Op. cit. (Levine, 1965), pp. 1430-1433.

[102] Meyer, John R., Clinton V. and Oster J.R., Deregulation and the New Airline Entrepreneurs, MIT Press, 1984. p. 22

From the start of deregulation in the United States until the end of 1992 there were 168 new certificates issued for new carriers, of these there were only 56 still flying.[103] The greatest number of new start-ups was from 1979 to 1981 when 55 new carriers started operations and from 1983 to 1985 when other 55 carriers started operations. As the thesis is only concerned with jet operating carriers the record is even worse as Table 4-4 shows. Of the 26 airlines listed 15 went bankrupt, 5 were acquired by other carriers, five are still operating and one became a charter carrier solely. Only America West has re-emerged from Chapter XI bankruptcy.

Table 4-4 Start-up Jet Operating New-entrants

Airline and origin	*Entered service*	*Ended service*	*Explanation*
New carriers			
Air Atlanta	1984	1986	Bankruptcy
Air Chicago	1980	1982	Bankruptcy
Air One	1983	1984	Bankruptcy
America West	1983	1994	Chapter XI (re-emerged)
American International	1982	1984	Bankruptcy
Florida Express	1984	1988	Acquired by Braniff
Frontier Horizon	1984	1985	Bankruptcy
Hawaii Express	1982	1983	Bankruptcy
Jet America	1982	1986	Acquired by Alaska
Kiwi	1992		Still operating('94)
McClain Airlines	1986	1987	Bankruptcy
MGMrand Air	1987	1993	Started charter only
Midway I	1979	1991	Bankruptcy
Midway II	1994		Still operating ('95)
Midwest Express	1984		Still operating
Muse (Transtar)	1981	1985	Acquired by Southwest
New York Air	1980	1985	Acquired by Continental
Northeastern	1982	1984	Bankruptcy
Pacific East	1982	1984	Bankruptcy
Pacific Express	1982	1984	Bankruptcy
People Express	1981	1986	Acquired by Continental
Presidential	1985	1989	Bankruptcy
Reno	1992		Still operating('94)
Sunworld	1983	1988	Bankruptcy
ValuJet	1993		Still operating('94)
UltrAir	1993	1994	Bankruptcy

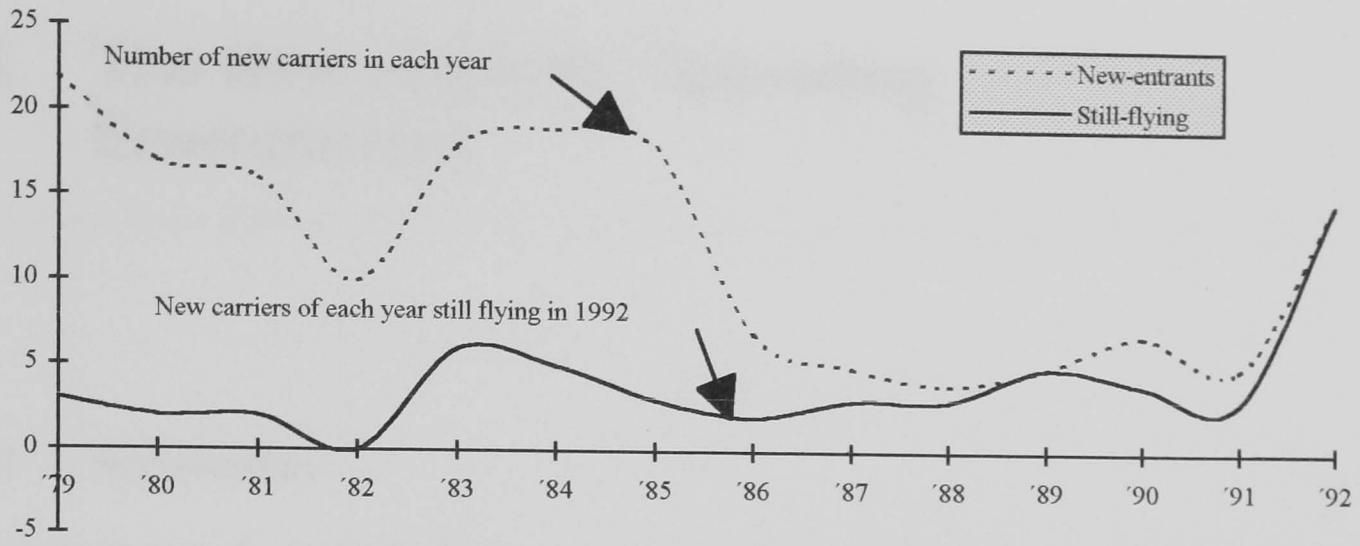
Please note that this table is not fully exhaustive of new-entrant jet carriers as some of these carriers entered bankruptcy very soon after initiation of operations, leaving little information in the literature.

The best known start-ups during early deregulation were: Midway Airlines(1979); New York Air(1980); and in 1981 there was People Express, Muse Air, Sun Pacific, Sun Air, Pacific Express and Air Chicago.

A substantial reduction occurred in new start-ups from 1985 until 1991, or 33 fewer airlines started operations then, than in the period before. In 1992 start-ups increased again to 15 new start-ups in that year alone. The market-share of new-entrants increased from 1978 to 1985 by 346 percent, or from 3 to 10.4 percent market-share. During the same period the former local carriers gained 30.5 percent increase from 9.1 in 1978 to 13.1 percent in 1985.

[103]The Avmark Aviation Economist, March 1993.

Figure 4-2 New-entrant's Survival Rate in The United States[104]



Source: The Avmark Aviation Economist, March 1993.

4.4 Conclusion

Most new-entrants have failed. The reasons are various but the main cause must be considered to be the management of these airlines.

All jet operating regional based new-entrants have been acquired by other airlines. Regional based new-entrants operated usually a mixed fleet of turboprop and jet aircraft. Their operations were centred around feeding agreements with a major carrier on short-haul routes out of a hub.

Charter based new-entrants operated on long-haul domestic and international routes. They operated mixed charter and scheduled operations. There are four charter-based new-entrants operating and two of those have had some success for a considerable time. Charter carriers have not found a successful niche in long haul operations with the exception of Tower Air.

The former intrastate carriers still operating have had considerable success with Southwest being United State's most profitable carrier since deregulation.

The number of start-up new-entrants has been phenomenal but all pre-1990 carriers have failed with the exception of Midwest Express.

The next chapter will give a comprehensive analysis on the operating environment of the new-entrants in order to shed some light on the role of the environment in their failures.

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[104]Includes all issued and cancelled operating certificates, both jet and turbo operators.

5. The New-entrants' Operating Environment

5.1 Introduction

In this chapter the attitude of the lawmaker and the regulator towards new-entrant airlines will be analysed. The operating environment will be analysed in terms of barriers to entry. The chapter will be focused on the issue from the stand-point of the new-entrant, first and foremost.

An important characteristic of the airline industry is that economies of scale are not considered to be present. This apparent fact, discussed in Chapter 2, makes the airline industry theoretically easy to enter. However, as will be discussed in this chapter incumbent airlines have erected other barriers to entry that have been quite effective. In addition, infrastructure barriers have limited the availability of valuable scarce resources to new-entrants making competition less viable or simply impossible in many markets.

5.2 The Regulator's Policy Towards The New-entrants

When new-entrants emerge in the form of new or expanding small carriers the staying power of the large incumbents is certainly a barrier to entry unless there are rules to play by. In fact the ground-rules for the treatment of new-entrants were paved before deregulation. The Chicago Midway 'Low Fare Route Proceeding' before the CAB, dealt with two new-entrants that had made an argument for a lead-time or a protected corridor, against competition by the incumbents. In this case the CAB ruled that:

> **It is one thing to grant a new entrant the opportunity to compete; one need have no concern in these circumstances about its ability to meet the public need, since others are present to provide service if it fails to do so. It is a very different thing to make an award to a nonoperating firm and then erect regulatory shields that were not there before to protect it in the hope that it will survive.**[105]

A dissenting member of the Board, O'Melia, found on the contrary, a reason to exclude incumbents from Chicago's Midway airport and, what is more, from

[105]CAB order 78-7-40, at 5.

matching the new-entrant's fares for one year in order to protect them.[106] The Board stated on O'Melia's dissenting view that:

> **New entrants if they succeed must do so in an environment that assures all carriers a fair opportunity to compete - not in one that requires ever increasing regulatory restraints of so flagrantly discriminatory a kind, even for limited period of time.... Moreover, if we impose restrictions to protect Midway Airlines today, we create a precedent for imposing a restriction on that carrier tomorrow to protect another new entrant. Leaving aside for the moment the possibility of preemption or predation by existing carriers, the success new entrants have in carving out their share of the market must depend primarily on their superior innovation or efficiency - not on such extreme restrictions on competition as the ones we are now excusing.**[107]

This view was the general attitude to new-entrants in the marketplace, which is not strange in view of the notion at the time, barriers to entry were limited. If frequent flyer programs, CRS bias and yield management systems had existed under regulation, new-entrants might have done better than they actually did in gaining protection.

The Deregulation Act did, however, mention new entry, by calling for:

> **... the encouragement of entry into air transportation markets by new air carriers, the encouragement of entry into additional air transportation markets by existing air carriers, and the continued strengthening of small air carriers...**[108]

In order to manifest the above Congress issued in a Statement of Policy, an objective of maintaining a system of convenient and continuous scheduled service for small communities.[109] However, a direct provision for the enhancement of new entry by new carriers was not considered necessary beside the provisions in the act where entry and exit was open to any carrier. Congress did, however, retain the provision to permit the Board to act on 'predatory' fares.[110] Nevertheless, the Senate Committee concerned itself with the possibility of the CAB limiting low-fare competition on the basis of this provision in the Act. As a result the Senate issued in a report,[111] a limitation on the application of this provision:

> **Thus the Committee would not expect the Board to strike down a low-fare level which represents genuine competition simply because it would tend to decrease the revenues of less efficient carriers in the market or perhaps force**

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[106]It played a role in this case that Chicago's Midway airport was on the verge of failure due to lack of services at the time.

[107]Op. cit. (CAB order), Midway, majority opinion, at 31-32.

[108]See Section 102(a) (10) of the Federal Aviation Act of 1958 as amended in 1979.

[109]See Section 102 (a) (8) of the Federal Aviation Act of 1958 as amended in 1979.

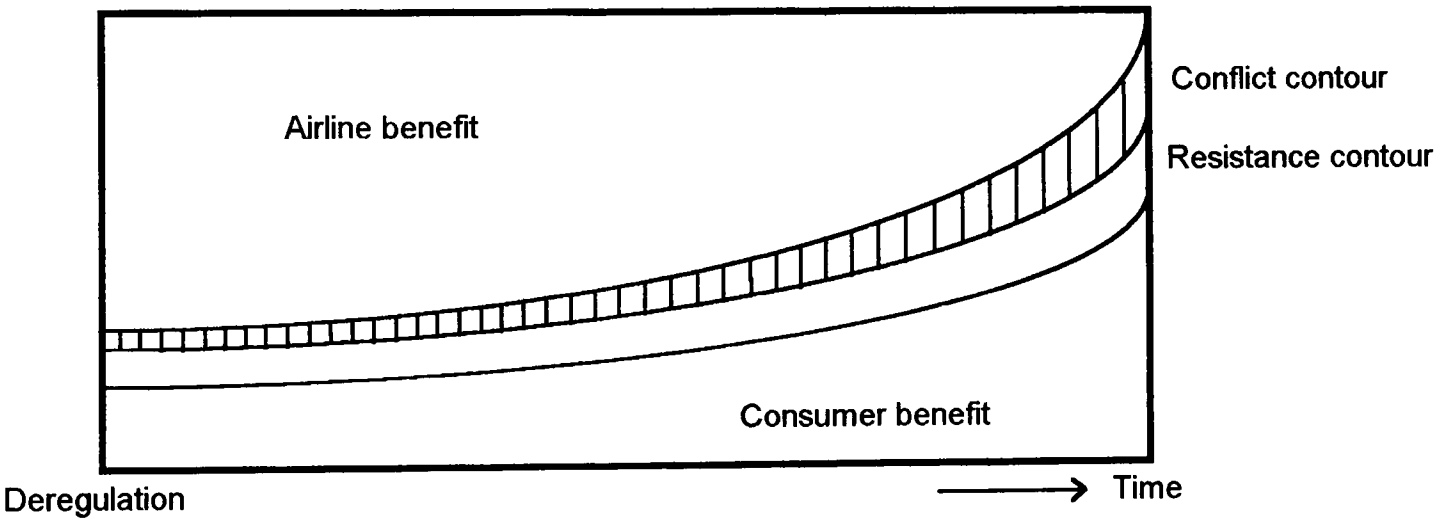
[110]See Section 1002 (d) (4) (B) of the Federal Aviation Act of 1958 as amended in 1979.

[111]Senate Report 107.

from a given market carriers who were not able to provide the price and service mix which the passenger in that market desired.[112]

The argument for the protection of new-entrants is perhaps stronger than ever in view of the fact that they have not been able to mount an effective long-term competition with the incumbents, as almost all new jet operating airlines have gone bankrupt or been acquired by other carriers. Thus, when the Board talks about 'an encouragement that assures all carriers a fair opportunity to compete' it is perhaps important to recognise that a 'laissez faire' attitude towards the whole industry may not yield what deregulation is supposed to accomplish, namely to maximise the consumer benefit. For, if the incumbents can create effective barriers to entry without long-term reduction of fares, like a new carrier could,[113] the consumer will be worse off. As a result a 'consumer driven' legislature will approach the maximum consumer benefit only by protecting new-entrants through the 'elimination' of predatory behaviour and unequal access to information generators. The result of such movement of the legislature will create increased resistance since the large incumbents may loose market-share.

Figure 5-1 Consumer Pressure and Industry Resistance to Change.



Immediately when such a change in regulation will threaten the large incumbent's chance of survival, forceful resistance will occur. This can be said to be an indication that the incumbent enters what can be termed as the *conflict contour* in Figure 5-1. In fact, there is a trade-off between consumer and airline benefit. As one increases it will be at a cost to the other, thus, the larger the pressure and gain on the consumer side the greater the resistance and inefficiencies caused on the airline side.[114] The

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[112]Op. cit. (Senate report 107), p. 11.

[113]Most new carriers have lower cost structure and can, therefore, lower fares to all passengers. Furthermore, the sustainability of their fare structure is long term but for the large incumbents low fares are usually short-term.

[114]This is along the lines of the cost of safety. The cost of a perfectly safe car would be immense and not viable because it would cost the customer more than he is willing to pay. Thus, there will be an equilibrium between safety costs and price in the market. The same goes for airlines as the maximum benefit to the consumer is a fare approaching zero and constant departures to each destination. Such a system is inconceivable but can be approached given that the priorities are decided. That is, should the system strive for low fares primarily; low fares and high frequency; low fares, high frequency and high service standard?

long-term benefit for both will be more efficiency but better adapted operation to consumer demands in the wider sense of the word. Meaning that not only will the airline industry approach its customers but also other stake-holders, like environmental protection groups.

The Clinton Government took a favourable stand on new-entrants as the upsurge of new-entrants and tougher stand on anti-competitive behaviour that facilitates entry. The Clinton nominated Commission to 'Ensure a Strong Competitive Airline Industry' concluded that new-entrance was important in 'sustaining future competition'. Furthermore, it concluded that entry of 'new competitors creates downward pressure on ticket prices, reduces expenses for business and individual travellers, and stimulates total traffic.'[115]

5.3 The General Theory of Barriers to Entry

5.3.1 General Barriers

One of the pertinent issues of deregulation was the freedom to enter the industry. This was rooted in the assumption that the entrance of new low-cost airlines would cause fares to come down and the incumbents to lower their costs in order to become competitive. The new-entrants have, however, faced effective barriers to entry not anticipated prior to deregulation.

There are eleven general barriers to entry possible, these are named by Porter in his landmark book on competitive strategy of these seven are relevant to this analysis:[116]
(i) The first barrier is economies of scale, which forces the entrant to enter at a large scale risking forceful retaliation from the incumbents or to come in at a small scale, usually in a niche market but at an cost disadvantage. It has been argued that economies of scale are limited in the airline industry.[117] Moreover, the new-entrants are usually at a cost-advantage; (ii) the second barrier is product differentiation, which forces the entrant to spend heavily to overcome existing customer loyalties. A representation of this in air transport markets are the frequent flyer programs; (iii) the third barrier is high capital requirements to be able to compete. This is a particularly hard barrier to overcome if capital is required for unrecoverable cost areas like advertising or customised information systems. Also the necessity of substantial capital outlays to create presence in a market is definitely a barrier to entry for new-entrant airlines. While aircraft have been available during recessions under favourable leasing terms they are less of a barrier than one could presume; (iv) the fourth barrier is switching costs, which are the particular costs of the buyer of switching the supplier of the product or service he consumes. In the airline industry, this switching cost is particularly low, thus, lowering this barrier to entry. However, the airlines

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The ultimate balance has to be a segmented equilibrium between the service demanded and the price the customer is willing to pay.

[115]Change, Challenge and Competition, The National Commission to Ensure a Strong Competitive Airline Industry: A report to the President and Congress, August 1993, p.18.

[116]Porter, Michael E., Competitive Strategy: Techniques for Analysing Industries and Competitors, The Free Press, 1980.

[117]Op. cit. (Levine, 1987), p. 401.

have sought to increase this switching costs on the individual level by introducing the frequent flyer programs; (v) the fifth barrier to entry is access to distribution channels. This is a notable barrier for new-entrants as airline's distribution outlets are extremely dispersed making it hard to influence individual travel agents. Thus, a small airline may have considerable difficulty in making its presence felt in the market. This is due to the tendency of travel agents to book those carriers that provide them with volume commission overrides[118] or are reputable and well known carriers; (vi) the sixth barrier is cost disadvantages independent of scale. These can be advantages of the incumbents due to location, contacts, experience and information; and (vii) the seventh barrier is government policy. The government can in spite of liberal law, limit or even hinder entry completely by making seemingly secondary regulation like licensing or access to necessary resources too strict for most or all potential entrants to overcome. This was the way in which the Australian government maintained its two airline policy; it placed import embargoes on aircraft.[119]

Porter mentions relative additivity of entry barriers as the foundation of a firm's decision to enter or not. Therefore, if the prevailing prices which balance the potential rewards of entry with the expected costs of overcoming structural entry barriers, and risks of retaliation are higher than the forecast profits, entry will be unlikely.[120]

5.3.2 Levine's Air Transport Barriers

Levine has identified three main barriers to entry in air transport. These are economies of scope, density and information:[121] (i) economies of scope are present when advantages result from the number of destinations or market segments served. In air transport, economies of scope can manifest itself in information efficiencies and efficiencies due to exploitation of principal-agent effects[122], an advantage not available to a smaller airline to the same degree;[123] (ii) economies of density is it called when greater utilisation of capacity is achieved by concentrating city-pair markets into a hub and spoke system that allows the gathering of few passengers from each origin into one common destination flight. This boosts the load-factor for a flight that would be otherwise practically empty if it was a return flight between one of the origin points and the destination; (iii) economies of information have to do with the advantages of name recognition and brand loyalty. It leads to a preference for an airline that has been present in a market for a period of time rather than for a

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[118] A new-entrant can certainly offer such overrides. The travel agent will, however, rather book a larger carrier that generates more booking volume. This is due to the fact that volume breaks are higher thus pressing the agency to book more on the large carrier in order to maximise the agency's income.

[119] A good introduction to Australian deregulation can be found in: Button, Kenneth, Airline Deregulation: International Experiences, David Foulton Pub., London, 1991, pp. 48-82.

[120] Op. cit. (Porter, 1980), pp. 7-17.

[121] Op. cit. (Levine, 1987), p. 419.

[122] The principal - agent effect refers to the principals attempt to create incentives for the agent in order to shape his behaviour due to lack of direct control and imperfect information on his behaviour, or conversely create incentives or strategies to prevent negative results from an agent's behaviour. Levine, p. 419.

[123] Op. cit. (Levine, 1987), p. 419

newcomer, because the consumer has not established a recognition and knowledge of the new product.[124] In such cases it is more comfortable to select a 'known' name although the newcomer may be offering superior product, because the information thereof may not have reached the travel agent or the customer, or the carrier has not 'proved' itself in the market.[125]

5.4 Marketing Barriers

5.4.1 Frequent Flyer Programs

Frequent Flyer Programs (FFP) can make a new-entrant's strategy to gather for business travellers less viable. This is due to the tendency of FFP's members to stick to their carrier in order to accumulate all the miles possible. Thus, the largest carrier that has the most extensive route network (economies of scope) becomes the best choice for the mileage maximising FFP member. As soon as the itineraries of the business person are restricted to few routes, other smaller carrier's FFP's may become attractive. However, a major decision in the selection of FFP's by a passenger, are the rewards. As the rewards are used for personal travel, vacation for example, the airline has to offer some exotic vacation destinations in their route system: Hawaii, Bahamas, Bermuda, for etc. For some smaller carriers this is not a viable addition to their route system. As a result, their FFP becomes less attractive to the FFP member. One way to break this specific barrier is to make a marketing agreement with some international carrier or an other US carrier having non-overlapping route system that includes viable holiday destinations.

Just to show how effective frequent flyer programs are in shifting traffic, one can take an example of Midway Airlines that in 1988 suffered in terms of the incumbents triple-mileage offerings diverting traffic away from the new-entrant. The result was to establish a first-class primarily in order to be able to offer first class as an incentive in their FFP. Furthermore, in order to bolster foreign destinations in their FFP a marketing agreement was entered with Canadian Airlines International and Air New Zealand.

5.4.2 Code-sharing

Code-sharing acts as a barrier to entry as it can exclude carriers from entering a hub with dominant carriers, if marketing agreement with the hub carrier(s) can not be secured. This is vested in the fact that the CRS system will show flights as direct on one carrier through the hub, even though the there is an equipment or carrier change. An other factor is that the incumbent may charge proportionally higher fares for flights terminating at the hub in order to reduce the incentive to use other than its own or the code sharing partner's flights out of the hub. Furthermore, the code-sharing partner usually gets prime location of gates to minimise walking between

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[124]Fawcett, Stanley E., Farris, Martin T., Contestable Markets and Airline Adaptability Under Deregulation, Transportation Journal, fall 1989, p. 19.

[125]To be a new-entrant in a market where failures of such carriers have been frequent or entry and exit have occurred frequently, can raise entry barriers as potential customers and travel agents avoid the newcomer.

connecting flights, but the independent new-entrant may have to settle for poorly located facilities.

5.4.3 CRS's

Most of the competitive methods and tools are readily available to new-entrants in the air transport industry. New-entrants can establish their own frequent flyer schemes, enter commercial CRS's, establish hubs, etc. Although all airlines have their own internal CRS's and some have developed those to handle reservations solely due to non-participation in commercial CRS's, new-entrants did not benefit from the advantage of a commercial CRS ownership in terms of incremental revenues.[126]

The whole question of CRS's bias in this section revolves first and foremost around the possible effects on the competitiveness of new-entrants. Beauvais, then chairman of America West, stated at a Congressional hearing in 1992, the following on the issue of non-host carriers in a CRS:

> **Our pricing is being regulated by American. We are being regulated in our pricing levels and structure, and if you deviate you are punished. In our opinion, being regulated by an airline is not good for anything, particularly the consumer and the industry.**[127]

Contrary to the above view held by non-host airlines the COVIA CRS partnership states that:

> **CRS is the reason new airline entrants can immediately get their products in front of the people who sell them, without any up-front costs. Deregulation, with the entry of so many new carriers, could never have taken off so quickly without CRS.**[128]

The two quotations above show a very different views to the CRS, one says that they seriously distort competition for non-host airlines and especially vulnerable new-entrants and the other says that they are an important tool for new-entrants to make instant market presence at minimum cost. Both views are right, but the bias allegation can only be eliminated if CRS's will be de-hosted by law.

Although it seems to be logical that the CRS vendors can use market pricing for their services, it is nevertheless, questionable if one group of carriers is treated unfavourable in comparison to others in this respect. The DoT stated in this context:

> **The carriers charged the highest fees tended to be new-entrants like Midway that also suffered the most from display bias. These fees raised the costs of such carriers and reduced their ability to offer lower fares than the**

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[126] Incremental revenues are those revenues that are due to the user's tendency to favour the host carrier when booking and also from built-in biases that cause the same advantage.

[127] Op. cit. (Airline Competition Enhancement Act of 1992), p. 54. A statement by Beauvais of America West.

[128] Op. cit. (Airline Competition Enhancement Act of 1992). A statement by Gregory A. Conley VP & General Counsel COVIA.

> **incumbent carriers. In addition, the fear of loosing access to a major system caused some carriers to promise a vendor that they would not compete aggressively against it as a condition to maintaining their participation in the system.**[129]

The United States Accounting Office stated during a Congressional hearing in 1988 that the:

> **... market power of CRS vendors does inhibit new entry and threatens the ability of new-entrants to survive...**[130]

The counter argument has been that the CRS's hosts should be in full right to charge for their services based on traffic feed into the system and the importance to the travel agent to be able to book on a particular airline. Both of these arguments are highly unfavourable to new-entrants as they provide little traffic initially and are of little importance to TA's, being less known and generally less trusted due to poor track record in the past.

A clause limiting the ability of a travel agency to install other CRS's, along with a clause that ties the lease-price charged to the agent for the CRS to the number of tickets the agent sells on the CRS's host airline, limits the new-entrant's chance of having equal opportunity of selling its seats in the system, based solely on price and quality.

Although CRS's host advantage may have been to the disadvantage of new-entrants in the past this will be negligible in the future as such systems will become increasingly neutral commodity-like, information source. Thus, CRS ownership will not be to the airlines advantage in any other form than as an investment.[131] [132]

The 1984 ruling on CRS's bias was not beneficial to all new-entrants. The reason being that many smaller carriers relied on connecting traffic (interlining) from the majors. What happened was that connecting flights fell into the third category of

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[129] U.S. Department of Transportation, Study of Airline Computer Reservation Systems. DoT-P-37-88-2, May 1988.

[130] This GAO report was quoted in a Hearing Before the Subcommittee on Public Works and Transportation House of Representatives on The Airline Competition Enhancement Act of 1992, p. 24.

[131] The CRS's owners indicated in a Congressional Hearing on the Airline Competition Enhancement Act of 1992, that the profitability of the CRS's had been drastically reduced due to intense competition between the systems and low booking fees that have not followed increases in the Consumer Price Index. As most of the CRS's do not release their accounts it is not possible to evaluate this statement at this time. However, it indicates that CRS's are perhaps not as good an investment as it was in the past. Nevertheless, it must be recognised that the construction of such a system involves very high sunk costs as the creators of Galileo and Amadeus found out and resulted in partnership with the U.S. CRS's.

[132] SAS decision to withdraw from Amadeus ownership reflects this shift in strategy, but SAS considered that ownership of superfluous benefit based on the EC's equal functionality requirement. As the European flag carriers will be under increased pressure to be profitable in a competitive deregulated environment they will place increased importance on disassociating themselves with the CRS's unless they will become a major source of income instead of a drain. In such an environment the CRS's will not play a major role as a barrier to entry for new-entrants. With the neutrality of CRS's the airlines will, however, find other ways of creating favourable bias towards their product. These are in the form of sales-incentives or 'commission overrides' and 'limited availability fares' to selected 'favourable' agents.

screen priority. This caused serious drop in bookings as TA's have a tendency to book high proportion of flights from the first screen instead of scrolling through all the screens before making a selection. Air Wisconsin ran into this difficulties after the ruling as 80 percent of their flights were made by TA's at the time and 40 percent of total traffic as a connection with United's flights. The change in ruling led to a loss of estimated 20.000 passengers in the first half of 1985.[133] As a result of the ruling on CRS bias the connecting carriers were effectively thrown into the arms of the incumbents, as for many the only way to survive was to get 'associated' in order to get code-sharing agreement and maintain previous traffic levels.

5.4.4 Volume Incentives

New-entrants face a particular barrier due to travel agents' volume incentives. Such incentives can be in the form of VIP club memberships, overbooking privileges, override commissions and free tickets. These incentives provide the agents with competition tools to favour good clients and build loyalty to their agency. Furthermore, commission overrides can have major impact on the agencies' profitability. In view of the fact that many customers leave the choice of airline up to their TA, 41 percent of business travellers and 55 percent of leisure travellers do so according to a 1987 Travel Agency Market survey. As a result, commission overrides can have major impact on TA's booking behaviour. In fact the same survey showed that 51 percent of TA's selected the carrier they had commission override agreement with, some of the time.[134,135]

A new-entrant is usually much smaller than a competing incumbent carrier, so the potential benefit from a new-entrant's commission override scheme is much smaller than that of the incumbent's, as the volume breaks are higher but booking volume larger, due to the larger route structure. As a result it is only logical that the TA will select the incumbent if selection is possible. Pricing is of course a factor in the selection but price matching is the usual practice of the incumbents if a lower fare new-entrant enters their market, thus, nullifying the TA incentive to book the new-entrant anyway.

5.4.5 Yield Management Systems

Sophisticated yield management systems (YMS) can act as an barrier to entry for new-entrants, as these allow the high-volume incumbent carrier to under-cut any fares offered on joint routes at a minimum yield reduction.[136] The state of the art

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[133]Air Transport World, Air Wisconsin survives the CRS blues, September, 1985, p. 34.

[134]The 1987 Travel Agency Market, pp. 28-45.

[135]Due to the sensitivity of the question it is likely that the actual practice of selecting the incentive carrier is much more widespread than the above number or frequency indicates.

[136]A landmark decision regarding the reduction of FFP as a barrier to entry was the Swedish government's decision to require SAS to open up its FFP to Swedish new entrants, as part of the carriers approval to take over Linjeflyg. The Swedish approach to the FFP's would, however, render the programs useless as distinguishing marketing factor for an airline in a domestic market, but it would still be effective internationally. It should, nevertheless, be acknowledged that the FFP will not be abandoned as result of such a move, due to their popularity and built-in incentive for the business person to travel perhaps more

YMS's were not available on the open market to begin with but only available to the original developers like American. It is also clear that taylor fitted yield management systems like that in operation at British Airways is not within the reach of smaller airlines. In that sense there will be some development gap between the large financially strong carriers and small new-entrants in terms of yield management systems.

5.5 Infrastructure Barriers

5.5.1 Congested Airports

Congestion at airports is one of the barriers to entry in any given market, provided that congestion exists. Even though congestion at an airport does not exist in terms of total slots offered it can certainly exist in terms of slots offered at peak demand periods. This means that a new-entrant will be at an disadvantage by not being able to offer its passengers the most competitive schedule.

At a congested airport the incumbent has a number of alternatives to hinder the success of the new-entrant. First of all it can monopolise the peak hour slots, pushing the new-entrant into accepting a less convenient flight schedule, thus, limiting load factors at the outset. This is especially effective if the new-entrant is aiming for business passengers. Secondly, it can leave the less desirable facilities to the new-entrant, for example, the gates furthest from the passenger lounges, older run down less appealing facilities, and release gates for connecting flights that are as far away from each other as possible within the terminal area. Such moves can seriously harm the new-entrant's image. Thirdly, the incumbent can charge the new-entrant excessively high prices for ground services monopolised by an agreement between the incumbent and the airport authority. In such cases, the new-entrant has to have its passengers come in contact with the incumbent's service personnel that can provide poor service on purpose.

5.5.2 Slots

The FAA's High Density Rule is an limiting factor, as it restricts access to slots at four airports: Washington National, Chicago's O'Hare and New York's Kennedy and La Guardia. The airlines can buy and sell slots at these and other airports but refrain from doing so unless under a major financial pressure, because of an airline's tendency to protect its market position even though it does not need some of the slots it possesses.

When slots are scarce and can be bought and sold like in the United States, they become an asset that involves cost of acquisition, upon entry in a congested market. The incumbents on the other hand may have acquired the slots free of charge, if operating at the airport before the regulation allowed slot trading. This can exclude the new-entrant competing on the basis of low cost and fares unless the carrier is on

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than necessary. Thus, the FFP's might turn into 'commodity' that everyone expects to be there, but will not consider in their decision on carrier selection, given that the Swedish approach will become generally accepted in order to reduce barriers to entry. In economic terms we can allege that the stimulating effect of FFP's will then be distributed to all participants in the market instead of only one, the owner of the program.

marketing terms with the incumbent. This is due to the fact that the incumbent can rely on number of tools to fight a small competitor at an airport: sandwiching, fare dumping, frequency increase and so on. This argument turns the proverb of 'it being better to be a large fish in a small pond rather than small fish in a large pond', into a fact. This can be seen clearly when the section on market-share is examined,[137] as new-entrant carriers operating from dominant position at an airport, like Midway at Midway Airport, Southwest at Love Field, America West at Phoenix and People Express at Newark, will be in a better position to protect their turf. Given that they are given the opportunity to consume the capacity of the airport in peace during the early stages of the operation. Presidential Airways attempted to fill a gap wide open at Washington Dulles Airport, as no carrier had made the airport a centre of operations. Immediately as the operation was initiated, United Airlines as well as New York Air entered the airport on large scale, thus, destroying Presidential's niche. The most viable strategy for a new-entrant regarding initial base airport is to build up a high frequency service at a secondary airport in the vicinity of a major or congested airport in a high density area. Exactly what America West, Southwest, People Express and Midway did.

Under the High Density Rule, slots were allocated by committees representing the airlines and the airport authorities. As new-entrants demanded access to the slot controlled airports the system crumbled as all the slots were controlled by the incumbents. Due to this problem and the resulting dead-locks in allocating slots, the DoT amended the High Density Rule in December 1985 by allowing slot trading.[138] Under the new system existing slots were allocated according to the holding in December 1985 and in April 1986 the airlines could trade them subject to prior approval from the FAA.

In order to facilitate allocations to 'other' airlines the DoT provided for a 'use or loose' rule that required an airline to use the slot 65 percent of the time or the slot to be subject to reallocation through a lottery process. The new-entrants seemed to have a decent chance of obtaining slots under the new system. This was not so in reality as the incumbents leased their unused slots making it virtually impossible to reallocate slots according to the use or loose clause, as the incumbent was considered to be using the slot although it was actually leasing it to an other carrier. What is more the incumbents actively acquired slots through airline acquisitions concentrating the majority of slots to few major carriers. This has led to a very effective barrier to entry for the new-entrants and a lucrative source of income for the majors. In fact if a new-entrant wishes to buy a slot it would have to invest large sums of money for a single slot at the four major airports. To lease is, therefore, the obvious alternative. However, it increases the cost structure of the new-entrant diluting its competitiveness somewhat with the incumbent. What is more, the incumbent can actually select to lease its slots only to airlines that are not competing directly or are

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[137] See Appendix-A

[138] Slot sales have decreased since trading was activated but leasing increased, which indicates that the incumbents will retain control in order maintain this barrier to entry, as reported in: Airline Competition; Industry Operating and Marketing Practices Limit Market Entry, Government Accounting Office, Report RCED-90-147.

code-sharing partners. Furthermore, leasing is usually short-term, making it hard for a new-entrant to sink capital into building a route, which it can loose suddenly. In fact only 9 percent of leases in 1988 were for more than 180 days with most lasting only 60 days.[139]

In order to facilitate new entry, the FAA in 1986 held a special lottery of 152 slots withheld at the High Density airports. Only new-entrants were eligible to participate. Regardless of this provision these slots ended up with the incumbents and only 13 of the 152 slots were utilised by new-entrants in 1990.[140] This shows clearly the problems associated with designing effective strategies to lower the slot barrier. In this case it would have been possible to attach a restriction on these slots, requiring them to be utilised by new-entrants only. That, on the other hand, would have lessened their value for the new-entrant holder, making them disadvantaged compared to the incumbent in case of market exit or due to other reason necessitating the liquidation of the slot asset.

5.5.3 Restricted Access to Gates

Even though the new-entrant can acquire or lease slots, lack of airport facilities can still deter entry. In the United States the airlines lease airport gates and all other facilities on long-term exclusive leases. This gives the airline full control and the ability to exclude other airlines and new-entrants, in particular, from using these facilities at congested airports. The federal government has, however, encouraged the use of 'preferential-use leases'[141] to provide access to facilities that would otherwise be idle. The fact is, however, that gate leases made on the basis of exclusive use gives the lessee full control of the facility while preferential lease allows the airport to allocate the use of it to other airlines, if the lessee has not scheduled the use of the facility. If the lessee then decides to use the facility the new-comer has to give it up. In the case of a new-entrant it may have to negotiate the use of facilities under exclusive-use with the incumbent, its competitor. In such case it may be too easy for the incumbent to refuse such lease and, therefore, actively close the airport to competitors although there are unused airport facilities available. GAO reported in 1990 that 88 percent of 3,129 gates at 66 medium to large airports were leased. Of the airports surveyed 26 percent had no unleased gates and 85 percent of the gate leases were for exclusive use.

The total number of subleases were 131 in 1990 of which other carriers than majors had 53 percent. In addition to this, 60 percent of all gate leases in 1990 had 11 or more years left to expire.[142] While the majors have 2,468 gates leased in 1990, the national airlines had only 240 and regionals 30.[143] This is 8.8 and 1.1 percent of the

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[139]Op. cit. (GAO, RCED-90-147), p.28.

[140]Op. cit. (GAO, RCED-90-147), pp. 22-24.

[141]A preferential-use lease grants the lessor the right to provide the facilities to other airlines if the facilities would otherwise be idle.

[142]Op. cit. GAO (RCED-90-147), pp. 35 and 38.

[143]Op. cit. GAO (RCED-90-147), p. 74.

total gates respectively. At the same time the nationals have 4.9 percent of the total U.S. revenue passenger kilometres and the regionals 0.3 percent. In that sense the allocation of gates seems fair, if it was not for the reason that gate allocations will actually hinder growth and preserve the major's size regardless of efficiency. That is the real problem, since if there is a carrier that can serve the public at a lower fare than the incumbent, that airline should be allowed to serve those that are willing to use it. Under present system the barriers to entry are too extensive to allow such a simple policy to work in reality.

What makes the picture even bleaker for new-entrants is that only 16 percent of all leased gates contain a 'use or loose' clause. In the cases where such provision exists it will usually require the lease holder to keep the gate idle for up to 3 months before the gate will be reallocated.[144] The outlook for small airports is somewhat better as 37 percent reported that they did not lease any gates and half of the leased gates are 'preferential-use' leases.[145] One of the reasons for this difference is that many small airports do not have loading bridges to aircraft, thus, they do not register as having gates.

5.5.4 Restricted Access to Airport Facilities

An incumbent can hoard airport facilities in order to block possible entry of other carriers, although, it does not intend to use those. This can sometimes be circumvented by the new-entrant by establishing facilities on its own, but such endeavour raises the entry costs dramatically. At some airports this is not even possible as the incumbent may have in its lease a clause giving it ability to block any further construction at the airport. In view of the risk for the airport to have one dominant large carrier that could exit the market, leaving the airport suddenly with much less traffic, many airports started to attract carriers by including a 'preferential use' clause in their leases. Such clause gives the airport authorities ability to lease to other airlines airport facilities not used by the lease holder.

In addition to gates, other facilities are being leased on exclusive terms. These include ticket counters, passenger waiting rooms and baggage claim facilities. What this arrives at is that limited access to airport facilities is a barrier to entry, especially at concentrated airports but to lesser extent at small airports. The major carriers can effectively control access to facilities through their exclusive facility leases, a situation that puts the new-entrant in the position of having to negotiate with its competitor. The most effective way of solving this stalemate is if the airport is effectively building facilities and giving new-entrants priority. The problem with that is severing of relations with large customers namely the incumbents and historically a short-term solution as the new-entrant is more likely than not to disappear and its leases ending up with the incumbent carrier anyway.

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[144]Op. cit. GAO (RCED-90-147), p. 35.

[145]Op. cit. GAO (RCED-90-147), p. 38.

5.5.5 Restriction of Airport Expansion

If we examine the expansion of airports in order to see if such developments will actually open up space for new-entrants, we see that the prospect is rather gloomy. Environmental issues have increased community resistance to airport expansion, as well have 'majority in interest' (MII) agreements between the airlines and airports. These agreements give airlines, having majority of operations at the airport a saying in matters that could affect their interest, namely expansion plans among other major issues.[146] The logic behind MII's is straightforward. The airports needed backing from the users in order to fund expansion projects often initiated by major airlines. The airport fees are then used to pay off the bonds. If bond payments become exceedingly high the only way to make ends meet is to raise the airport fees. As a result it is in no way strange that the airlines would in some way protect their interest, namely with MII's. A problem, however, arises when the MII's are used to block off airport expansion that would benefit new-entrants or other competitors.

In fact 3/4 of airports with MII's reported to a GAO survey that such agreement actually limits or delays expansion of airports.[147] The use of MII's is in much wider use by medium to large size airports or 55 percent compared to 15 percent at small airports.[148]

5.5.6 Environmental Impact Restrictions

Environmental issues like pollution are causing ever more constraints at airports. The one affecting the airlines the most is noise. Noise control has raised the barriers to entry for new-entrants in number of ways. First, it has led to less ability of new-entrants to use older cheaper aircraft, as those do not in many cases, fulfil the requirements at airports. Secondly, some airports limit the number of operations effectively closing it down for new-entrants due to 'grandfathering' of slots. Such actions can create 'fortress' airports for incumbents, almost a monopoly power in a market. New-entrants operating Stage II aircraft will be limited to airports allowing such aircraft, thus, effectively barred from some airports.

In order to show how environmental issues can affect new-entrants we can look at AirCal's problems at John Wayne Airport (JWA) California. JWA was AirCal's main airport. As of March 1982 the Board adopted an access plan designated to reduce the noise impact in the area. The plan limited authorised average daily departures (ADD's) at the airport to a maximum of 41, to be divided among the five airlines then serving JWA. AirCal was cut from 27 to 23.5 departures. The plan had also subsections subjecting each airline to a possible 10 percent reduction each quarter, dependent on how well it performs with regard to noise limitation. In December 31, 1982 AirCal was down to 19.92 ADD's and on November 30th, 1984 it had only

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[146] Op. cit. GAO (RCED-90-147), p. 45.

[147] Op. cit. GAO (RCED-90-147), p. 48.

[148] Op. cit. GAO (RCED-90-147), p. 52.

14.6 ADD's. The airline blamed estimated losses of $2.5 million in 1982, $15 million in 1983 and $17.5 million in 1984, on the ADD plan.[149]

All constraints, including environmental issues, have led 89 percent of all medium to large airports to report that one or more factors hinder expansion to some extent.[150]

5.5.7 Hubs

For the same reasons as stated in previous sections, hubs are a major deterrence to entry. The hub airline, usually, governs the prime facilities at the airport and the prime slots, due to large arrival and departure banks, making those unavailable to the new-entrant. As a result, this limits the new-entrants viable route strategy from a hub airport to secondary markets.

5.6 Equipment and Financial Barriers

5.6.1 Equipment Barriers

Equipment as an barrier to entry is not much mentioned in the industry. Nevertheless, new-entrance increases dramatically when aircraft are readily available in the market, due to recession or other causes. As mentioned before there are three main sources of aircraft for new-entrants; (i) used aircraft market buying/leasing; (ii) new aircraft from leasing companies; and (iii) new aircraft bought from the manufacturer. The two former ways are the two most commonly used by new-entrants with the first one being the general option. Since the mid-1980's the noise abatement regulation have had serious impact on airlines' aircraft renewal and selection. As a result, there have been cheap older aircraft available to new-entrants that have not been operable to all airports due to noise restrictions. The regulator, in order to facilitate new-entrance has provided exemption from some of the noise regulation for a period of time. In fact, new-entrants that began operations 'after interim Stage 3 phase-in deadlines will not be subject to any Stage 3 requirements until the next interim deadline.[151]

A banker made it clear, following the 1990's upsurge of new-entrants, that:

> **... traditional bank sources will remain sceptical about the new-entrants, except "banks and lessors looking to offload aircraft.[152]**

These words say more than anything else on why the equipment barrier is lowered as well as the financial barriers during periods of excess availability of aircraft.

The conclusion is then that the equipment barrier is lower during periods of recession in air transport than during growth periods, unless airlines are retiring older aircraft due to noise abatement laws. In those cases the retired aircraft can be absorbed by

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[149] Air Transport World, February, 1984, p. 61.

[150] Op. cit. (GAO, RCED-90-147), p. 52.

[151] Op. cit. (Change, Challenge and Competition), p. 18. Note that the Commission recommended that new-entrants should be required to meet the same requirements as other airlines in all aspects.

[152] Quoted words by Rick Pranke of Chase Manhattan: Airfinance Journal, Fit to survive, April 1994, p. 18.

the new-entrants if the law makes those aircraft usable by exemption or if they can be used to operate into airports with less stringent noise regulation.

5.6.2 Financial Barriers

The availability of capital to new-entrant airlines is a barrier to entry. At the dawn of deregulation a number of airlines were successful to raise share capital through financial markets. These were carriers like Midway, People Express, Muse, New York Air and Jet America.[153] Airlines appearing after that were received with less enthusiasm by venture capitalists. In fact the whole airline industry has been poorly rated in financial markets since deregulation and especially new-entrants in view of their poor overall performance.[154] More recent carriers have used a method of self financing during the early period and then raise public money as the airline has proved itself to some extent. Such self-financing can be in the form of employees capital injection in addition to funding from private investors.[155] This method of initial capital formation appears to be the norm for past 1990 new-entrants, and will probably remain so until this new streak of new-entrants have proved themselves for a longer period. Furthermore, the availability of capital will always reflect the availability of risk capital for high risk endeavours. Thus, causing fluctuation in this barrier to entry.

5.7 Legal and Regulatory Barriers

5.7.1 Legal Barriers

Legal and regulatory barriers can be built around government policy taking protectionism attitude towards existing carriers. This is, however, not prevailing in the US deregulated market. There are, nevertheless, a number of fundamental problems related to the laws and regulation that can be considered to raise barriers for new-entrants. These are the anti-trust law, noise regulation, slot allocation regulation, carrier licensing, CRS's regulations and TA's regulations. The general conclusion is that these are barriers that are being reduced by the lawmaker and the regulator, especially in terms of the Anti-trust Law, CRS regulation and by ensuring TA's independence from the CRS owners.

The licensing of air carriers can also work as barrier to entry, by adopting so stringent requirements for new carriers, that only very few will ever get airborne. The fact of the matter is that very few carriers applying for licence fulfil the requirements for

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[153] See Chapter 6, Section 6.5.

[154] America West regardless of initial success was never rated higher than B+, United as BB+ and Alaska although profitable for decades as BB+. According to S&P's rating system of the financial condition of firms for investment purposes the average grade for U.S. airlines in 1993 was B+, which is a middle speculative grade.

[155] Reno Air took this route and raised initial $2 million and took out a IPO later. Kiwi raised $10 million from its employees later the carrier took out private equity placements raising the initial capital base. ValuJet started out with $3.4 million provided from the founders, later when the airline had established itself it took out an private placement raising $12 million.

licensing. One of the FAA requirements is the production of operations manuals on all aspects of the operation from uniforms to emergency evacuations, proving flights (50 hours) and emergency evacuation tests.[156] These requirements are usually deemed as necessary for the safe operation of the carrier and are, consequently, not questioned. Other relevant source of legislation are social legislation, involving labour, drug and alchohol testing and so forth. As social legislation (labour, drug and alcohol testing, for etc.) and technical requirements are costly to meet, these raise the financial barrier for new-carriers.

5.7.2 Anti-trust and Predatory Behaviour

If the new-entrant's expectations as to the force of the incumbents reaction to entry is high, it can deter entry and, therefore, form a barrier. Many countries do, though, have 'fair' competition laws that can be a powerful buffer against unjust competitor's actions. The alleged predatory actions of British Airways against Virgin Atlantic, as an example, has weakened British Airways as a competitor for new entrants with respect to this potential barrier. This is due to the scrutiny BA will experience from competition authorities and the media if new cases of alleged predation occur.

Predatory actions or intentions are an important issue for new-entrants as actions by the incumbents along such lines can easily crush a small airline, unless the new-entrant has something unique and unmatchable to offer in the market. It is, however, almost impossible for a new-entrant to come up with a unique product due to the commodity nature of the airline product. In view of this, anti-trust enforcement is an important issue for small airlines. The meaning of 'predatory', although section 101 of the Act referred it to that stated in the Clayton Act, is a subject to controversy.[157] There have been two basic views of what constitutes predation: (i) that of offering'any price below cost'; and (ii) the 'motive' of driving a competitor out of business or out of a market.[158]

An important example in this regard was Northwest's reactions to the new-entrant Reno Air in 1993. Northwest had terminated its service out of Reno in 1991, thus, leaving a market space for Reno Air, who commenced three daily flights to Northwest's Minneapolis hub. The incumbent attempted to 'discipline' the new-entrant by starting a service to Reno again and issue plans to operate flights from Reno to three destinations in competition with Reno Air. Northwest under government pressure withdrew its plans in Reno. The question is, nevertheless, if these actions by Northwest should be termed as predatory or simply aggressive competition. If one looks at a similar case concerning United and Pacific Express, where the new entrant alleged predatory actions after United Airlines started to operate flights on Pacific Express's San Francisco route, United defended its case successfully on the grounds that its move was a logical extension of its network growth. Northwest on the other hand entered the Reno market again after it left it

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[156] Airline Business, North American Niches, May 1990, p. 58.

[157] See Section 101 of the Act. ' Predatory means any practice which would constitute a violation of the antitrust laws as set forth in the first section of the Clayton Act (15 U.S.C. 12).

[158] See Section 2 of the Sherman Act.

probably on the basis of inefficiency of operations. Thus, it seems rather clear that by entering the market again just after Reno Air came about, that the sole intention may have been to discipline the new-entrant or to force it out of the market.

5.8 Human Capital Barriers

5.8.1 Employee Barriers

A possible barrier to entry is experience accumulated with time, making entry costs high, as the incumbents have accumulated cost saving experience not readily available to the new-entrant. The classic experience curve involves the increase in workers efficiency, layout improvement and increase in specialisation that occurs with time. For the experience curve to be a barrier to entry it needs to involve experience that is not readily available to new-entrants. Porter assumes that the new-entrant will have inherently higher costs than the incumbent at the outset.[159] In air transport this does not hold as most new-entrants have lower costs.[160] Thus, the general assumption must be that experience is not a large barrier to entry in air transportation compared to many other industries.

New-entrants can usually benefit from ex-airline employees, made redundant during recessions in the industry. Thus, the new-entrant can gain employee experience instantly and often at minimum cost. Thus, it is apparent that the experience is not the same barrier to entry in air transport, as it would be in most manufacturing industries.

Experienced employees were not as readily available during early deregulation as later, especially after the 1986 merger mania. As a result, it is less of a barrier than it was. In fact, most new-entrants established in the 90's have been established by employees of bankrupt carriers or employees being laid-off from the majors.

5.9 Conclusion

Barriers to entry are primarily in terms of market power, shortage of capital and congestion rather than incumbents' cost economies of scale.

The first new-entrant, Midway Airlines, was the first to face numerous barriers to entry, it tried to gain protection at Midway airport but was denied as such protection was neither deemed to be in any carrier's nor consumers' interest. That effectively laid the basis of new-entrants' treatment in the deregulated environment.

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[159] Op. cit. (Porter, 1980), p. 12.

[160] In fact if the classic experience curve traits are analysed we find that costs actually increase as an airline ages, workers efficiency increases in the beginning but then level of and may decline as occurred at People Express when the employees were literally burning out due to the high work load and the stresses associated with providing high quality service and up-beat attitude all the time.

It is mentioned that consumer pressure for change in the new-entrants' favour raises resistance of airlines in proportion to the increased costs to the incumbent airlines. An equilibrium can be created in order for both sides to benefit from high quality, low-fare service.

Frequent flyers programs are the most effective loyalty tool of the incumbents in the past deregulation era. New-entrants have found it hard to compete with the large FFP programs, but have made their programs more attractive to passengers, through marketing agreements with other larger domestic or international carriers.

Code-sharing was both a necessary feature of the hub operating new-entrant in order to gain priority on CRS's screens after a change in regulation that demoted interlining flights in screen priority, causing a drop in bookings. The code-sharing agreements have, however, caused loss of independence and eventual acquisition by the incumbent due to the code-sharing partner's vulnerability in such marketing pact. The problem can be compared with the 'one customer' dependency problem that often causes bankruptcies.

Computer reservation systems (CRS) have created market power for the hosts that have been the largest major carriers: United, American, Eastern and Delta. The systems have provided the carriers with extra revenue and profits. The extra revenue generated from the tendency of agents to book the flights of the system owner rather than the competitors is termed as 'incremental' revenue. CRS bias caused a large influx of incremental revenue due to the hosts display priority of own flights. Such biases along with number of other advantages of CRS ownership are being neutralised creating a more level playing ground and reducing the distribution barrier to entry.

Volume incentives have been used by the airlines in order to create TA's loyalty and preference. Such programs are important for the TA's as the normal commission level is seldom enough to run an agency. The downside of this practice is that new-entrants usually with little volume will find it hard to break the loyalty formed in this way.

Yield management systems have been found to be an important competition tool for incumbents as they allow them to offer very low fares without diluting their yield seriously. Such capability raises a serious barrier to entry for a comparably low frequency, low-cost, no-frills and low-fare carrier.

Airport congestion raises barriers in the densest markets, especially at the High Density Rule airports that have slot restrictions. Slot trading was allowed in 1986 creating much wealth for the largest carriers that had most of the slots at the congested airports. After that the new-entrants had to buy or lease slots in order to gain access to the largest airports. In order to do so the new-entrant had to be code-sharing with the slot owner in order to be reasonably secure, as most of the slots are leased on very short leases, usually for only two or three months at a time.

Gates are not readily available to new-entrants rather than slots at airports, as the incumbent can acquire more of these facilities than necessary in order to be in control. Such ability depends, on the form of leasing for these facilities at the airport.

Majority-in-interest (MII) clauses can give dominant incumbent carriers the ability to veto expansion plans at airports, that could benefit new-entrants. Therefore, raising infrastructure barriers further.

Environmental protection and health regulation, especially, noise abatement has caused massive changes to airlines in terms of costs and access to some airports.

The availability of the largest single capital and cost outlay for an airline, the aircraft, has had much effect on the ability of new airlines to start operations. During recessions and industry consolidation aircraft become more readily available reducing this barrier to entry.

Legal and regulatory barriers can be hard for new airlines to overcome as much cost is involved with fulfilling some of the requirements for carrier licensing. Such requirements are usually safety related and not questioned in the literature. There have, however, been some opposition to recent costly regulation on drug and alcohol testing.

Anti-trust enforcement is important for the new-entrants as such regulation can hinder too much concentration in the industry and anti-competitive behaviour of the larger competitor. The enforcement of such regulation has, however, been very problematic due to the difficulty of defining and proving predatory behaviour.

The human capital barrier is mentioned and it is concluded that this barrier is not a large factor for new-entrants in air transport after 1986, due to layoffs and bankruptcies that have created a large force of experienced people looking for work with the airlines. Therefore, many of the past 1990 new-entrants have been formed and staffed by these people.

In the next chapter new-entrants will be examined from the standpoint of their structure or internal characteristics and operations.

6. The Anatomy of a New-entrant

6.1 Introduction

The purpose of this chapter is to provide some information of how new-entrants were organised and operated in the deregulated market environment. The chapter's structure is derived from Figure 1-2, as presented in Chapter 1.

In researching the new-entrants it soon became apparent that information is scarce on the smaller airlines in comparison to People Express in particular. As a result, People Express is mentioned to a greater extent than other airlines. This should not skew the findings as the general underlying principles of its initial success and then failure is coinciding with other new-entrants in many respects.

6.2 Management

6.2.1 Education/experience

Little information is available on the education of new-entrant airlines' managers. In a survey conducted on new-entrant airlines' managers, as part of this research project (see Chapter 11), it was found that managers (n = 45) of new-entrant airlines have completed on the average 16.1 years of formal education. That means that they have on the average a bachelors degree. Of those that responded in the survey 12 had masters degree, 23 bachelors degree, 2 had some college education and 4 high school or flight school.

Contacts and experience rather than education seem to be most valuable for founders of new-entrant airlines. The question of whether education makes the establishment of important contacts easier to accomplish is beyond the scope of this thesis, but worth having in mind.[161]

If one examines the track record of new-entrant airlines' founders one can easily establish that experience in the airline industry is a prerequisite for getting the airline flying. Managers and staff at new-entrant airlines are usually professional people coming from either large incumbent carriers with the motivation of doing things differently or coming from bankrupt carriers wishing to stay in the industry. The former motive was the reason for People Express formation while the latter goes for Reno that was created by former Pan Am and Eastern employees as well as America West that was formed by ex-Continental staff. In fact jet operating airlines have to

[161]It is a fact that Harvard Business School (HBS) graduates have started the more successful new-entrants, like Donald Burr of People Express, Fred Smith of Federal Express (small package service and cargo) and Rollin King, a HBS graduate that suggested the formation of Southwest to Herbert Kelleher.

have management staff with airline experience in order to function adequately from the beginning. It must be noted, though, that People Express emphasised non-airline experience from its customer-managers (front-line staff) in order to smooth the job flexibility and team spirit, but they expected resistance to their concepts by veteran airline employees.

The importance of good connections and relevant experience is apparent if Donald Burr of People Express is examined. He had gained very important experience as president of National Aviation, a Wall Street company specialising in airline investments and then he climbed from the executive vice presidency to presidency at Texas International. This experience gave him extremely good credentials and connections to raise capital and start an airline. His education was the highly regarded Harvard master of business administration degree, a degree that seems to open many doors in corporate America.[162] Mike Hollis of Air Atlanta had similar background but he earned a law degree after graduation from Dartmouth College and started his carrier with the investment firm of Oppenheimer & Co as VP-public financing. Then he ran his own law practice in Atlanta and served as an assistant to the DoT's Urban Mass Transportation Administrator including various other public sector posts.[163] What Hollis lacked compared to Burr was aviation experience, a factor that may have influenced Hollis optimism of the success of a premium service strategy in the face of total failure of such a strategy up to that time.

Paul Quackenbush of Empire graduated from Yale University and entered the Navy. After earning his commercial licence and later air transport pilot licence, he managed a fixed base operation, an aircraft sales outlet in Hawaii, worked in marketing at Aloha Airlines, was employed by Air America as training and operations pilot and became again a Fixed Base Operation manager at Oneida County Airport from where he founded Empire Airlines.[164]

Mark Morris of Air 1 had considerable experience as a pilot, manager of small specialised airline and then of DHL Airways a small passenger cargo carrier. In the mean time he had been general manager of St Lucia Airlines for few months until it was nationalised. His period as a consultant got him interested in forming Air 1 after his proposals for such an operation was turned down by a client.[165]

Although William Lyon and George Argyros that took over AirCal in 1982 had no airline experience, their senior staff was highly experienced with a total of over 90 years airline experience in 1984.

William Slattery the original president and CEO of Braniff II came from TWA were he was vice president of sales and services.

Harold J. Pareti the founder of Presidential co-founded People Express and was previously employed by Texas International as assistant secretary and staff vice

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[162]Harvard Business School, People Express (A) Case no: 483-103, 1983, pp. 2-3.

[163]Air Transport World, Air Atlanta works toward strengthening its position, June 1985, p. 44.

[164]Air Transport World, Some said 'It can't be done,' but Empire is doing it, November 1982, p. 94.

[165]Air Transport World, Air 1 expansion planned to attain profits, August 1984, p. 47-48.

president of governmental affairs.[166] Most of the carrier's employees were actually ex-People Express employees. Thus lending Presidential considerable experience from another new-entrant, which was unusual as most new-entrants have been staffed by ex-employees of the incumbents.

To conclude, it is clear that it is a predominant tendency of new-entrants to be staffed by employees of either bankrupt carriers or carriers cutting-costs by layoffs.

6.2.2 Personality

Ari Ginsberg and Ann Bucholtz undertook meta-analysis to establish if research on entrepreneurs actually proved any difference in their leadership traits from other business leaders. The study found that the definition of what constitutes an entrepreneur varied greatly among the studies making their comparison highly questionable.[167] If the definition approaching that of an airline founder is used one can cite a study by Smith & Miner that defined entrepreneurs as being persons involved in the founding of a business. Their study was limited to businesses experiencing fast growth rates, defined as an increase of more than 1.5 employees per year. According to the study entrepreneurs scored higher than ordinary managers in the sample on the following factors; self-achievement, feedback of results, personal innovation and for the total score of all examined factors.[168]

Autocratic and charismatic personalities are common among new-entrant airline CEO's. One can name El Acker at Air Florida,[169] a graduate of economics and psychology,[170] while Donald Burr, Lamar Muse and Herbert Kelleher are more on the charismatic side. The true benefit of the charismatic leader to a new-entrant are the savings in promotion costs due to the ability to get more media coverage. The airline's strategy has, however, to take into account this ability of the founder and integrate it into the airline's image. Herbert Kelleher of Southwest is well known for his stunts where his image was portrayed as a 'fun loving eccentric' in the positive meaning of the word. This image may be originally his own, or cleverly managed and escalated by his closest staff. But the talent has to be there and Mr. Kelleher certainly possesses it richly. Lamar Muse used similar tactics at Muse Air, having been well seasoned at Southwest as he was its president until 1977. Donald Burr, although highly charismatic did not use the 'fun' factor as much but became a sort of a 'saviour' of the cities he flew to, from high-fares. His charismatic features were, however, greater internally as his staff believed in his management philosophy and were highly motivated by him. In the last two operating years People Express experienced changed climate and the chairman seemed to change management tactics according to a manager of human resources, that was made to leave the company:

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[166]Op. cit. (Harvard Case no: 483-103, 1983), p. 21.

[167]Ginsberg, Ari and Buchholtz, Ann, Are Entrepreneurs a breed apart? A look at the evidence, Journal of General Management, Vol. 15 No. 2 Winter 1989, pp. 32 - 40.

[168]As reported in: Op. cit. (Ginsberg), pp. 32-40.

[169]Formerly the president of Braniff.

[170]Sampson, Anthony, Empires of The Sky, Coronet Books 1985, p. 274.

> **..I had challenged him and asked questions. Now I think that was a mistake. He didn't want to hear it anymore.**[171]

The same article cites other employees that felt that the chairman had become more autocratic and avoiding challenges as the years passed.[172]

6.2.3 Objectives

The personal objectives of managers can affect the destiny of their companies as was highly visual when Ed Acker left Air Florida to become the chairman of Pan Am, Air Florida's main competitor. Acker reversed Pan Am's decision to abandon Air Florida's routes, initiating aggressive competition with his former employer.[173] Whether this move was made due to his dissatisfaction at Air Florida or his ambition to attain higher monetary rewards or more power associated with a large world famous old-timer like Pan Am, one can not clearly establish. Ed Acker's personal objectives, nevertheless, had a profound effect on Air Florida and played an important part in its rise and decline.

The People Express chairman was challenged after the acquisition of Frontier that his real objective was to get back at his former employer Texas International. To 'steal' Frontier from under its nose, may have played a role for People's Express chairman, but whether the acquisition was driven by his need for revenge or whether People Express was altogether formed on this drive like Muse Air was, one can not tell and only speculate.[174]

The airline business has often been cited as having much status appeal, attracting investors and entrepreneurs alike although airline investments are highly risky and the likelihood of success for a start-up carrier are slim. That fact explains many persons' eagerness to start an airline.

6.2.4 Locus of Control

Duchesneau and Gartner found a link between very high *locus of control* and unsuccessful or failed firms.[175] Therefore, it is of interest whether the top executive is performing more than one role at once as representation of centralisation. Like being the airline's chairman, CEO and president or some other combination of the sort. Under this form he is less likely to be challenged, although decision making will be quicker. Such form of management suits start-up companies often particularly

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[171] Business Week, Up, Up and Away?, November 25, 1985, p.64.

[172] Op. cit. (Business Week, 1985), p. 64.

[173] Lloyd's Aviation Economist, Why Air Florida Failed, August 1984. p.22.

[174] Op. cit. (Business Week, 1985), p. 64. Burr denies this charges in the Business Week article.

[175] Duchesneau, Donald and Gartner, William B., A profile of New Venture Success and Failure in Emerging Industry, Journal of Business Ventruing, Vol 5, p. 305.

well, but the structure becomes a liability as the company grows and gets more complicated.[176]

The criticism of having a combined CEO and chairman is that the idiosyncrasy of the person can influence decision-making to a greater extent than if the person was working closely with a separate chairman. Argenti has proposed that combination of top roles to be associated with failure due to a lack of the necessary checks and balances.[177]

The autocratic situation and lack of balance is further escalated if the combined chairman/CEO nominates his own delegates to the board of directors. For example, People Express board of directors was composed of insiders only until 1985 when a Harvard professor was nominated to the board.[178] On the board where People's Express investment bankers and on of which was a large shareholder. This was the combination of the board until 1985 when the professor joined the board.[179] Employees had no representative although they were the majority shareholders in the company. The chairman was quoted on this issue in an interview, in 1985:

> **I'm the biggest shareholder and the founder, and I think I represent best the constituencies here.....There's no need for other people [employees] on the board of directors.**[180]

The statement indicates that the chairman was not as willing to share power with his employees, as the airlines' 'people attitude' could have indicated. It may have been to the company's benefit to have an employee nominee at the board level in order to represent employee issues, that had become a major problem as early as 1982, due to the airline's fast growth.

Poorly balanced board of directors is cited as a common ingredient of a failed company. For example, if most board members are venture capitalists like characterised People Express there could be a swing towards their interests of financing expansion and acquisition. If marketing, operations and finance are equally represented into inside and outside directors it is more likely that the board will effectively perform its duties.[181]

Table 6-1, does not make a distinction between directors that have financial interest in the company as mentioned above in the People's Express case. Such directors are

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[176] See a detailed account on this issue in: Flamholtz, Eric G., Growing Pains: How to Make the Transition from an Entrepreneurship to a Professionally Managed Firm, Jossey - Bass Pub., 1990.

[177] Argenti, John, Corporate Collapse: The Causes and Syptoms, McGraw-Hill, 1973. p. 123.

[178] The professor was perhaps not that much of an outsider, though, as he was Burr's friend from the chairman's days at Harvard. This nomination was nevertheless important but too late to have any major impact on company policy.

[179] People Express Prospectus, April 26, 1983, pp. 21-22.

[180] Op. cit. (Business Week, 1985), p. 65.

[181] The functions of the board of directors is the overall supervision of management and accountability for the conduct and policies of the organisation. Corporate Boards and Nominee Directors, L.C. Gupta, Oxford University Press, Delhi, 1989.

sometimes regarded as insiders rather than outsiders. Unfortunately, there was not data available to make such distinction although it would have been preferable.

Table 6-1 Examples of New-entrant Airlines' Composition of Board of Directors

Airline	*Inside*[182]	*Outside*	*Total*	*Failed?*
America West[183]	3	5	8	Chapter XI (Emerged)
Reno Air	2	5	7	No
MGM Grand Air	4	10	14	Became charter operator
Southwest	1	6	7	No
People Express	1	4	5	Yes

Source: Financial Statements for 1992, except for People Express where HBS case was used.

Of the carriers mentioned above MGM Grand Air has the largest and most monumental board with famous names like Lee Iacocca the former chairman of Chrysler Co. Regardless of that the carrier has been unsuccessful from the start. A fact that shows well that a board with many outside directors does not insure any success.[184]

6.2.5 Decision Making

Decision-making is the function that ultimately makes or breaks any company according to the model presented in the introduction of the thesis. This function's quality is affected by number resources like information quality and quantity, experience, environment and management aspirations. In order to present the importance of decision making People Express will be examined in that regard.

If we make an example of People Express, decision-making at the carrier was until 1985, made up of management teams, that were assisted by advisory. The decision-making flow was from nineteen management teams, that usually bypassed staff committees that never had much role, to the chairman through weekly staff meetings or to the co-ordinating councils that would make recommendations to the chairman. The decision-making would ultimately rest with the chairman himself as the system functioned.[185] One must recognise that no other management officer (top manager) had much flair, as the chairman was the only person associated with daily operations, that sat on the airline's board of directors, as mentioned before.

In view of the stresses that People's Express organisational structure placed on the employees, it is highly likely that the increased pressures of changed competitive

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[182]Insider in this context is someone with an executive function within the company.

[183]This is the board of directors until sept. 1992. After receiving a financial package the board was changed.

[184]MGM Grand Air's majority share-holder is billionaire Kirk Kerkorian. A fact that is adequate explanation in itself as to why the airline has had so much staying power regardless of constant losses from the outset.

[185]Harvard Business School, People Express, Case No. 490-012, pp. 7-8.

environment led to threat-rigidity[186] in People Express decision making. Burr as an individual had the greatest influence on the company's destiny in this regard due to his central role in all decision making. If we assume that Burr realised that a disaster was pending unless something was done, one can infer that his personal stress-level must have been fairly high. Disaster research on stress and anxiety provides some insight into behavioural tendencies during such situations.

Withey reported in 1962 that individual's anxiety in crisis situation lead to 'a narrowing of the perceptual field and a limitation of the information that can or will be received', leading to a rigid response.[187] Putting this into context with People Express, we find that the chairman was criticised for deciding on the Frontier acquisition too quickly, something that could indicate rigidity in decision-making in view of the decisions' conformity to other airline's actions at the time; for example, that mergers were 'fashionable.' Previous major decisions by Burr seemed to be 'thought-out' but the Frontier acquisition should have been seen clearly as incompatible with the situation at People Express. Thus, it is highly likely that mounting pressures from the competitive environment had increased Burr's stress levels to such an extent that threat-rigidity in decision-making occurred.

Another supporting factor was the decision to step-up employee pressures in the face of employees frequent complaints of excessive job pressures, long-working hours and burnout. All this seems to point out that new original solutions to the airline's problems were not adopted, as the situation craved.

6.3 Organisation

6.3.1 Organisation Structure

New-entrant airlines have selected to establish organisation structures that have allowed the necessary cross-utilisation of employees in order to attain maximum employee efficiency and lower costs. Employee staff-committees and advisory councils have been used in order for employees to have a saying in the running of new-entrant airlines founded on theories of participatory management.[188] Such policy had an added importance due to the new-entrant airlines' wish to stay non-unionised. Thus, if employees are owners and participate in decision-making or at least have a say, there would be less reason for employees to get organised within union.[189]

No airline went further into employee programs than People Express. Their organisation structure was highly decentralised on the surface. In 1982 it was composed of nineteen management teams, four staff committees and advisory

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[186] For a detailed discussion on this issue see: Barry M. Staw, Lance C. Sandelands and Jane E. Button, Threat-Rigidity Effects on Organizational Behavior: A Multilevel Analysis, Administrative Quarterly, Vol. 26, December 1981.

[187] Withey, S.B., Reaction to Uncertain Threat, in Man and Society in Disaster, editied by G.W. Baker and D.W. Chapman, New York: Basic Books, p. 118.

[188] Donald Burr claimed that his ideas were based on Douglas M. McGregor's book The Human Side of Enterprise, McGraw-Hill, 1960.

[189] Note that non-unionisation is important, not primarily to pay lower wages, but to retain flexibility in the organisation of the workforce.

councils. The advisory councils were composed of service managers, flight managers and maintenance managers. Then each advisory council nominated two of its members to the co-ordinating council that met with Burr.[190] Employee cross-utilisation was an important idea in order to increase efficiency, but seemed to have been made into a ritual at People Express, to such an extent that employees complained of being moved too much around learning no one function fully and being constantly wasting time re-learning tasks over and over again. Some employees got away with ignoring the concept and stayed in one line or staff function in order to address the growing problems of the airline's fast growth.[191]

The fast growth at People Express caused the airline, apparently, to outgrow its organisational structure. Hence, in August 1982 People Express introduced team managers as the management teams' span of control was too large. The team manager's role was to ensure that their team members had all the resources and support they needed. In 1984 there was still a major change to the organisational structure as the heavy emphasis on cross-utilisation lead managers to conclude that employees identified too much with their staff functions rather than operations. As the number of employees was totalling over 3000 in 1984 the team spirit of the early days was disappearing.

In order to revitalise the 'old' spirit People Express introduced operations groups of about 300 people each. The groups were formed around aircraft types, so there were to begin with six 727, three 737 and one 747 group. Each group of 300 employees was then broken down into teams of 20 people each led by a team manager. Each group then controlled a section of the company like an airline within the airline, thus, being in charge of specific gates, routes and planes. This structure was never fully implemented but showed early signs of success.[192]

People Express was out of the ordinary in terms of organisation structure. Other new-entrants adopted a more traditional organisation structures, usually segmented into the marketing, operations and finance function. One of these was Southwest.

Southwest's organisation structure is departmentalised. In 1972 to 1973 the main departments were operations, marketing, ground operations and the comptroller. Lamar Muse was at that time the president and treasurer with Herbert Kelleher being secretary and general counsel reporting directly to the president.[193] The structure is still the same in general terms. What is worth special attention in Southwest's organisation chart is that ground operations are separated from flight operations giving it increased independence. This configuration is probably the heart of Southwest's emphasis on fast aircraft turnaround that has maintained the company's high efficiency to present day.

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[190]Op. cit. (HBS 490-012), p. 7-8.

[191]Op. cit. (HBS 490-012), p. 12

[192]Op. cit. (HBS 490-012), p. 15.

[193]Harvard Business School, Southwest, Case No. 574-060, p. 9.

It is hard to conclude that the type of organisation structure has played much role in new-entrants' failures. However, an organisation unable to grow as fast as many of the new-entrants did, certainly had an impact on their fortunes, as is depicted in Section 6.3.4.

6.3.2 Employee Issues

New-entrants adopted leaner organisation structures and were effectively paying less for more work. Therefore, employee issues were a matter of priority due to its correlation with quality service and motivation. A 'we care attitude' or 'you are working for yourself' became the buzzwords. America West, for example, ran day-care centres and employee assistance programs. The assistance programs dealt with problems ranging from substance abuse to personal financial difficulties.[194] Such programs ratify clearly to employees a 'we care' attitude resulting in increased employee loyalty and willingness to excel in their jobs.

Cross utilisation or flexible job descriptions have been widely accepted, like discussed before, in order to increase efficiency. The concept was put to use very efficiently by People Express that called all its employees 'managers', front line people were 'Customer Managers', the crew was 'Flight Managers' and maintenance workers 'Maintenance Managers'. In fact the employees were trained to take on assignments as diverse as baggage loading to being a flight attendant, with pilots taking on such tasks just as well. These programs worked to begin with but the airline's growth rate soon created intense pressures on employees causing many of them to find a policy of such cross-utilisation hindering the carrier's efficiency, but the airline had actually declared how much time each customer manager should spend in each function. This system that can be said to have taken cross-utilisation to the extreme, disintegrated slowly due to employees not having 'time' to take it too seriously during the latter half of People Express life-cycle.[195]

America West did not confer the 'manager' title on all its staff like People Express, but defined itself as a people oriented airline, not only in terms of service to passengers but also internally:

> **In a service business where you expect to do a good job with customers, your first priority is to do a good job with your employees,.....It's a matter of survival.**[196]

America West has used 'peer review hiring' where hiring committees are made up of workers. The committees apparently seem to have better insight into who will perform and fit into the environment present.[197] To emphasise its employee policy even further, America West maintained an open door policy throughout its growth giving top managers the ability to feel the pulse and be in direct contact to what was

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[194] Airline Executive International, America West Leaders Learn From Lorenzo's Example, June 1990, p. 19

[195] Op. cit. (HBS 490-012), p. 12

[196] Op. cit. (Airline Executive International), p. 19

[197] Op. cit. (Airline Executive International), p. 20

happening in the airline.[198] America West cross-utilises gate personnel so that any gate personnel can go on board as flight attendant if necessary. Many non-unionised new-entrants utilise such flexibility in order to increase efficiency without going to the extreme and make cross-utilisation into a philosophy like People Express did.

Stock-participation programs became common among the new-entrants. Both People Express and America West had such programs. At People the employees were initially required to buy shares at one fourth of their market value and optional shares at one half of market value.[199] During the first years of operations many of the first employees had share-holding worth substantial amounts of money. At America West employees spent 20 percent of their first year salary to buy stocks at 15 percent below market value and optional stocks of up to 20 percent of salary after that.[200]

Profit sharing-programs were considered important for the new-entrants in order to avoid labour trouble during 'good times'. This is based on the tendency of low pay-scale employees to demand their share of the profits when they occur. In order to facilitate this both People Express and America West offered their employees profit-sharing plans. At America West employees were given 15 percent of pre-tax profits and at People Express employees could earn as much as 30 percent of their base salaries under the profit-sharing program.

The problem with profit-sharing and stock-participation programs is that they will dilute motivation when profits do not occur and stock prices decline, creating more problems than if they did not exist. The main reason for this is that the new-entrant airlines used these programs in order to justify low pay scales compared to the incumbents. Consequently, the stock-participation programs took on added value and importance to the employees. As soon as the stocks go down it is harder for the employee to accept the lower pay scale and if the climate allows he or she will start to look for work elsewhere. This is especially so with the pilots. People Express, for example, had problems retaining pilots after 1985 due to their ability to get positions with carriers paying higher wages, demanding no involvement in tasks unrelated to flying, like People did.

Southwest, contrary to most new-entrants, has not kept costs down by paying low salaries, as its salary level is comparable with the industry average and even though the company was unionised. This actually prevents the problems People Express had when things turned sour as losses will not affect employees financial resources the way it did at People Express.

To conclude one can say that new-entrants have emphasised good relations with employees in order to keep the unions away, creating highly motivating work environment composed of young front-line employees and experienced managers. The employees have received less salary than the industry average in exchange for stock-participation and profit-sharing programs. Use of this financial reward systems has, however, proved to be a two edged sword for the new-entrants.

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[198] Op. cit. (Airline Executive International), p. 21

[199] Air Transport World, People Express earns profit in first full year, April, 1983, p. 19.

[200] Airline Executive International, America West Leaders Learn from Lorenzo's Example, June, 1990, p. 18.

6.3.3 Union Relations

The notion after deregulation was that cost-savings had to be accomplished by reducing labour costs below the industry average. The new-entrants, unlike the incumbents, were in a good position to attain much lower labour costs by hiring non-unionised labour at a much lower salary levels in exchange for profit sharing or stock participation, as already discussed.[201] Low salaries and prolonged losses at America West, for example, started to cause disillusion among the staff leading enough customer representatives to sign union election cards in 1987 to call for a voting. [202] In order to raise support for non-unionisation the management raised base pay by 16 percent, leading to a meagre 14 percent in favour of union representation.[203]

Due to the lack of unionisation, strikes were unheard of at the new-entrants. Strikes have, in fact, not been frequent after deregulation if 1979 and 1980 are excluded. Those strikes that have occurred have been related to extraordinary situations at the airlines involved, usually incumbents. The strikes have usually benefited new-entrants by opening access to new-markets or increased demand on established routes. Strikes occurred frequently just after deregulation, as Table 6-2 shows, but seldom after 1980 and never at a new-entrant airline, with the exception of Southwest and Capitol in 1980.

A further factor resulting in fewer strikes is that the unions were under increased pressure after the Eastern demise. The unions were accused of having overplayed their role resulting in severe job-losses of the people they represented by going against industry trends that could not be turned around. At any rate the unions have been under much pressure by airlines in the deregulated environment due to the major airlines' tendency to lower costs through wage concessions and the new-entrant airlines' ability to maintain low wage scales and stay non-unionised. However, the co-operation between the management of the unionised airlines and unions, has lead to improved communication programs.

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[201]Southwest on the contrary often pointed out that real cost savings were first and foremost achieved through high utilisation of aircraft through short turn-around times. This philosophy has made Southwest the lowest unit cost carrier in the United States although its wage levels are comparable to the industry average. The non-unionised new-entrants had, however, to offer their employees incentives in order to hire at the lower salary levels. The incentives were in the form of profit-sharing and stock-participation programs as mentioned before. The new-entrants soon found out that the new-entrants had problems retaining their employees as the demand for air travel rose and the incumbents were expanding because the incentive programs provided only short-term gains, if any, that disappeared as soon as the new-entrant had problems, a trend that was usually on the horizon soon after start-up. America West, for example, was what could be called an 'employee friendly' employer due to the founders vision on the issue and in order to keep unions away.

[202]Labor organisation in the United States at non-organised companies has to go through a certain process. First of all there has to be employee dissatisfaction with any of the issues which the union can influence. These are usually wages and work conditions. If someone requests the union to come in it will arrange for a voting on union membership. Management at non-union companies will usually have organised their management in such a way that union organisation would be unlikely, by promoting 'people' orientated staff policy and 'we care' attitude. Furthermore, they will in the case of 'low wages' compared to the industry average, offer profit sharing and stock participation programs. If the employee feels satisfied and secure and the company on its way to profitability whereas the employees will gain from the incentive programs he or she will not vote for an union.

[203]Feger, Helena, America West Sets a Risky New Course, Arizona Trend, Vol. 1, Iss. 5, January 1987, p. 54.

Table 6-2 Strike Periods from 1979 to 1992

New-entrants	*Strike period*	
PSA	25/9/80-15/11/80	
Southwest	13/1/80-18/1/80	
Capitol	9/10/80-10/10/80	
Other airlines		
United	31/3/79-26/5/79	* 29 days in May 1984
Hughes	10/9/79-9/11/79	
Ozark	14/9/79-4/11/79	
Altair	13/4/80-18/8/80	
Eastern	2/6/80-31/7/80	4/3/89 -[204]
Continental	5/12/80-20/12/80	13/8/83-31/12/83
Wien	8/5/77-28/2/79	
Northwest	21/5/82-17/6/82	
Pan Am	28/2/85-14/4/85	

Compiled from: Air Carrier Traffic Statistics, RSPA National Transportation Systems Center, Cambridge, MA.

In fact, at critical moments like financial crisis, the airlines have discovered that an effective communication program can actually prevent distortion during labour negotiations that result from going through the formal channels.[205] Thus, the three facets of airline labour policy that has effectively led to less tendency for disputes, is (i) increased union co-operation with management; (ii) increased communication with employees; and (iii) employee-friendly atmosphere, that works against union organisation.

6.3.4 Organisation Evolution

The organisation evolution was characterised by the fast growth that appears to occur at many new-entrant airlines. It causes displacement in the organisation structure as training and hiring falls behind and the necessary infrastructure like information systems lacked the necessary sophistication to follow the increased complication of the organisation. Internal communication that was characterised by informality of the entrepreneur organisation broke down as formal communication channels and organisation charts become ineffective and are often resisted by the early staff that 'miss' the informal close atmosphere of the 'early days'.

Figure 6-1 shows a conceptual framework that represents the 'lag' that fast growth companies experience in hiring and training of staff to attend to the problems generated by growth. The management information system's (MIS) development takes usually only the size of the organisation at the time of installment the next immediate years due to the formidable costs of computer equipment and short write-off time. Thus there will usually exist a lag between MIS's organisational needs in fast growing companies and actual provision in the existing information system.

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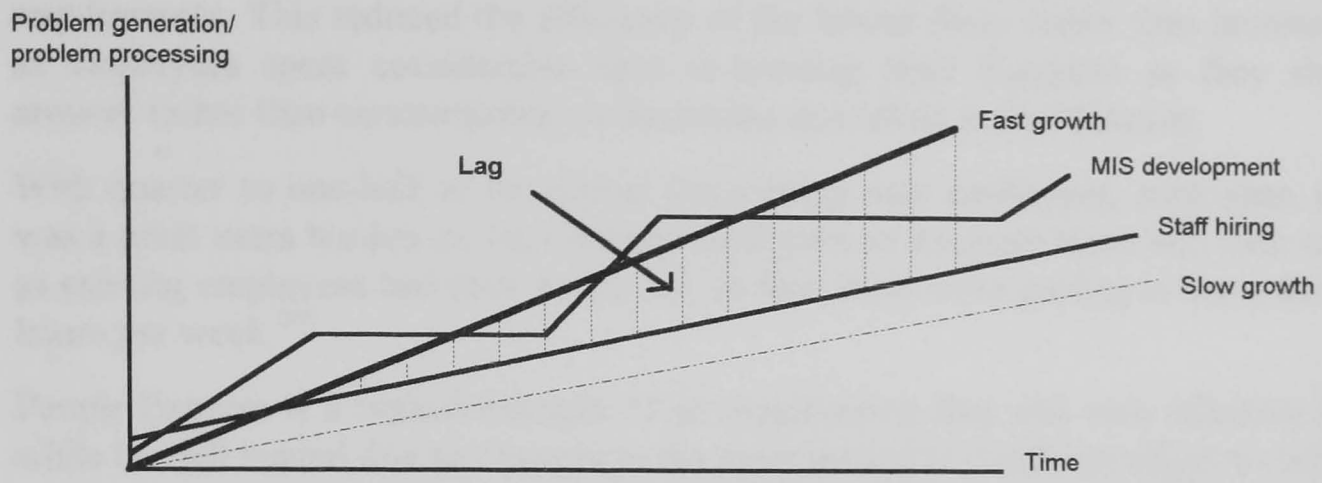
[204]The strike reduced Eastern's operations down to 10 percent of previous level. During the strike it lost much of its markets that were captured effectively by the competitor's that stepped up frequency, entered Eastern's market and captured its customers with FFP's.

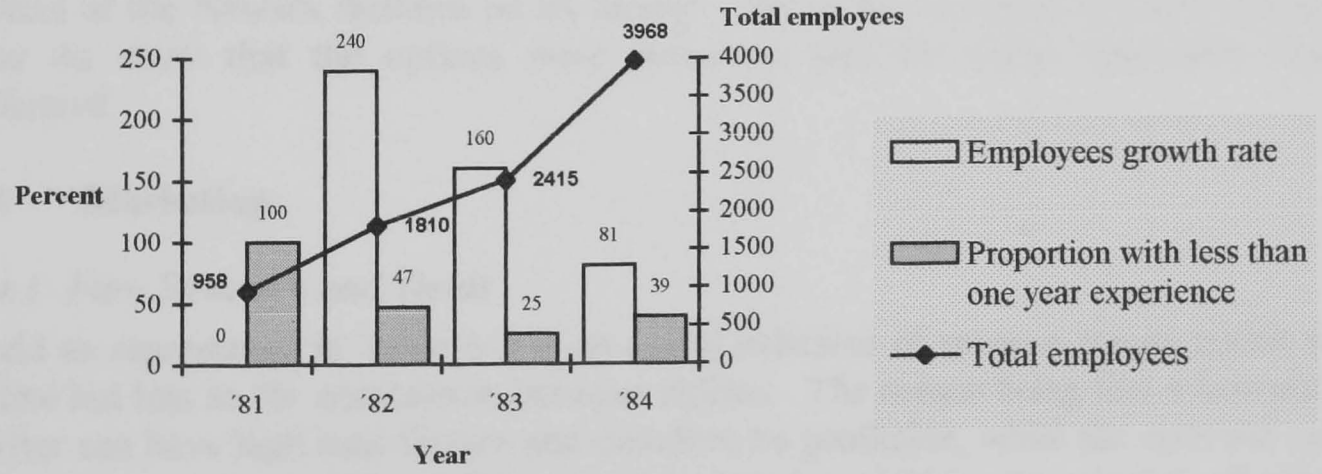
[205]Air Transport World, Talking to employees: airlines discover internal communications, August, 1986, p. 25.

Figure 6-1 The Lag Between Problem Processing and Problem Generation



When internal pressures require new software or development of the existing one and larger computers there will be a sudden increase in computer power. If the growth is maintained the company will gradually use up the extra capacity requiring a new upward shift in capacity. What usually happens is that the company will not address the problem until the internal pressure is intense due to the inadequate system.

Figure 6-2 People's Express Employment Growth Rate and Proportion with Less Than One Year on The Job Experience.



Source: Compiled from DoT Form 41.

The hiring gap is created due to the fast growing organisation's inability to absorb employees with adequate experience fast enough to actively solve impending problems associated with its growth. The sobering reality for an organisation is that hiring enough people may not be the main problem, but rather making the newly hired employees productive fast enough to keep up with the organisation's need. The fact being that the faster the company grows the larger the proportion of newly hired employees not functioning properly.

There were two factors that hindered People Express in functioning properly in terms of employee training. First, the intense growth caused the company to reduce the requirements it set initially for new employees' personality to fit the organisation.

Second, the religious emphasis on cross-utilisation increased the training requirements. This reduced the efficiency of the labour force rather than increased it as employees spent considerable time re-learning their functions as they shifted around, rather than concentrating on becoming specialists in one function.

With quarter to one-half of the labour force being new employees, each year, there was a great extra burden on the existing employees to integrate them into their tasks, as existing employees had their hands full. In fact, most were putting in more than 60 hours per week.[206]

People Express is a typical example of an organisation that was very effective for a while but fell behind due to changes in the environment it could not adjust to with its available resources. At least the course it selected was not a success, although there may have been another better course (see Chapter 7), the incremental change in People Express basic philosophy was not fast enough to counter the innovative developments by its. As a result People Express attempted a 'discontinuous' change[207] in cost structure, product design and organisation structure, in order to shift itself to profitability. Such sudden shift is riskier for a company having ignored the environmental developments like People did, than if the organisation is adjusted incrementally. People Express could have developed a more sophisticated CRS system making yield management possible. It could have entered the business passenger segment earlier. It could have developed another organically grown hub in the midwest earlier and it could have grown slower in order to reduce the adverse effects of the Newark facilities on its service. These are of course speculations but they do show that the options were numerous and the vision may have been defective.

6.4 Marketing

6.4.1 Fare Structure and Yields

Yield as represented in Table 6-3 is an useful indicator of revenue trends within an airline but less so for comparison between airlines. The reason being that a low-yield carrier can have high load-factors and therefore be profitable, while the opposite can also apply. As a result it is important to examine yield in the context of other profitability factors like load-factors and specifically profit margin. Furthermore, sector distances affect yield in such a way that yield declines usually with increased sector distances, reflecting the same trend in costs.

In Table 6-3, it is clearly apparent that regional based new-entrants have the highest yield per revenue passenger kilometre (.269) while charter based new-entrants have the lowest (.068). The former group of carriers usually operate on short-haul routes linking with larger carriers. Such operations incur higher costs due to higher landing, terminal and fuel charges per each kilometre flown due to the short sector distances. As a result, it is not surprising to see high yield figures for regional based new-entrants as the costs have to be matched. The reverse is true for charter based new-

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[206]Op. cit. (HBS case 574-060), pp. 9-11.

[207]Meaning a sharp change in philosophy.

entrants as their sector distances have been relatively long compared to all other new-entrant carriers.

Table 6-3 Revenue of New-entrant Airlines - US cents per RPK

Airline	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*'92*	*Mean*
Regionals														
Air Wiscons.				0.374	0.352	0.336	0.280	0.317	0.274	0.236				0.310
Horizon Air						0.322	0.273	0.260	0.275	0.279	0.289	0.275	0.253	0.278
Aspen						0.236			0.254	0.213	0.249			0.238
Empire			0.240	0.258	0.257	0.242								0.249
Premium														***0.269***
MGM Grand								0.306	0.237	0.268	0.232	0.186	0.170	0.233
Air Atlanta					0.289	0.186	0.119							0.198
Midwest Exp.						0.175	0.157	0.236	0.164	0.152	0.135	0.122	0.115	0.157
Intrastate														***0.196***
Air California	0.143	0.144	0.134	0.136	0.149	0.136	0.120							0.137
Southwest	0.107	0.108	0.095	0.097	0.093	0.089	0.084	0.077	0.079	0.074	0.076	0.072	0.089	0.088
PSA	0.140	0.141	0.122	0.120	0.130	0.126	0.122	0.121						0.128
Air Florida	0.106	0.099	0.095	0.071										0.092
Start-up														***0.111***
New York A.		0.133	0.152	0.171	0.155	0.129	0.114							0.142
Sunworld					0.108	0.109	0.102	0.126						0.111
Florida Exp.					0.097	0.104	0.095	0.091						0.097
Midway	0.300	0.186	0.156	0.137	0.188	0.133	0.102	0.078	0.090	0.089	0.080			0.140
Presidential							0.088	0.099	0.135	0.132				0.114
Muse Air		0.139	0.108	0.093	0.088	0.087								0.103
Jet America			0.117	0.083	0.095	0.100	0.072							0.093
America W.				0.080	0.081	0.085	0.079	0.074	0.077	0.083	0.074	0.065		0.078
Braniff II					0.076	0.070	0.061	0.056	0.068	0.067				0.066
People Expr.		0.088	0.087	0.062	0.061	0.064	0.058							0.070
Charters														***0.101***
Arrow Airw.				0.052	0.059	0.072	0.067							0.062
Tower					0.062	0.052	0.056	0.054	0.046	0.041	0.045	0.048	0.054	0.051
Capitol Air	0.102	0.060	0.057	0.062	0.039									0.064
World	0.073	0.060	0.055	0.056	0.051	0.047	0.042							0.055
Tower					0.118	0.129		0.116			0.088	0.082	0.106	0.106
Mean	0.139	0.116	0.118	0.124	0.127	0.138	0.110	0.144	0.155	0.148	0.141	0.121	0.131	***0.068***

Compiled from: DoT Form 41. * The carrier was delinquent in filing with the DOT, the data may be inaccurate as a result. All values are 1992 dollars.

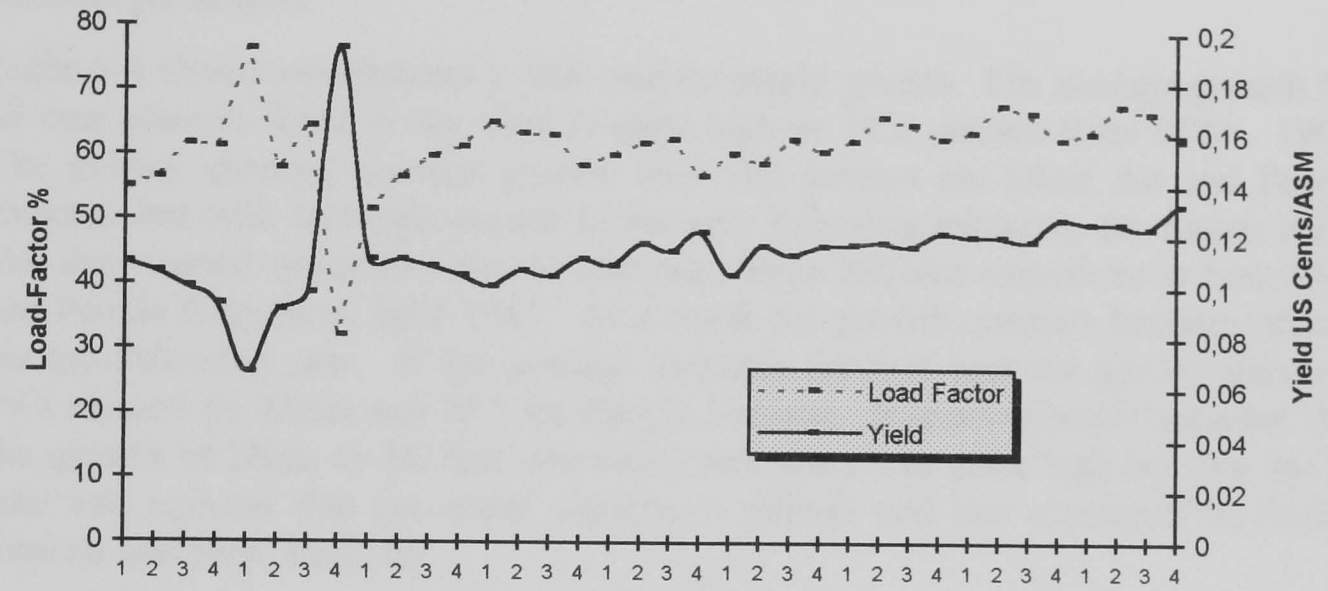
The high yield of premium service new-entrants (.196) is of course in direct relation to their high cost service in addition to relatively long sector lengths. The former intrastate carriers show their spectacularly low yield compared to stage lengths just like the start-up new-entrants. This reflects the low cost of these carriers as can be seen in Table 6-10.

In the table one can observe that Southwest Airlines is decreasing its yield over the years but at the same time its cost per available seat kilometre stays relatively fixed. This reflects that Southwest's unique low cost advantage is decreasing in terms of cost margins.

6.4.2 Supply/Capacity

The capacity offered by the new-entrant is one part of the equation leading to success or failure. If the capacity is too much compared to demand the carrier has two alternatives either to cut extra capacity down or reduce fares in order to stimulate demand. The new-entrants have actually used both methods. Southwest, for example, has a clear relationship between reduction in yield and increase in passenger load factor, as Figure 6-3 shows.

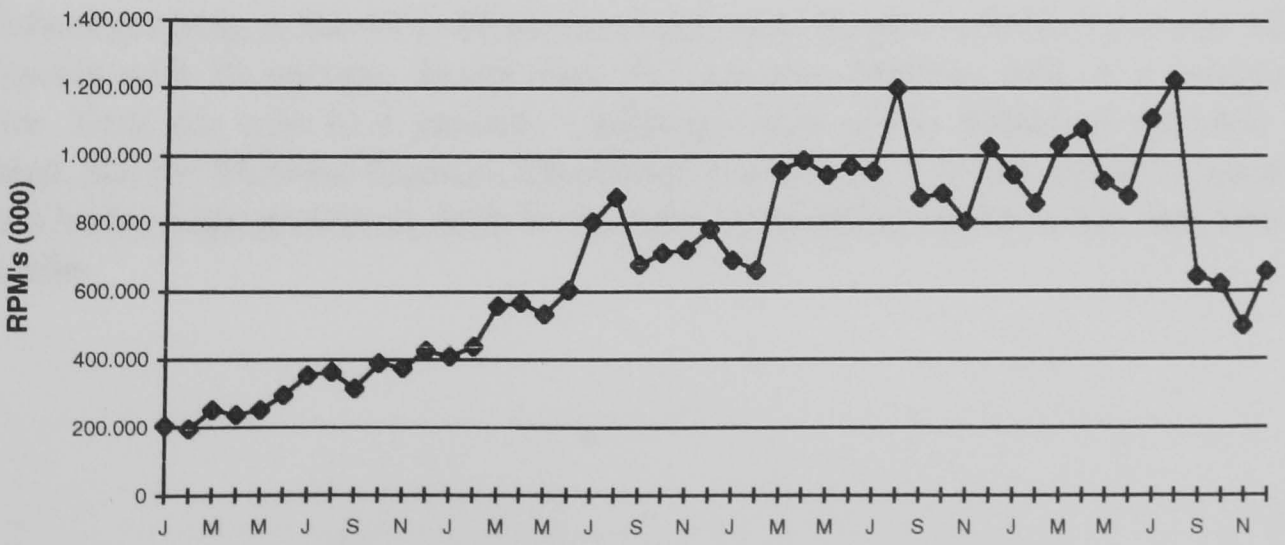
Figure 6-3 The Relationship Between Yield and Load-Factor At Southwest Airlines: Each Quarter 1986 - 1994.



Source :The First Boston Corporation (Thomson Financial Networks - CD), June 11, 1993. Please note that no explanation was found that explains the large shift in yield and load-factor for the fourth quarter in 1987.

If the new-entrant has homogenous strategy like People Express had from 1981 until 1985, namely emphasising the low-fare market only, rather than mixing the emphasis both on business and leisure passengers, there are going to be weekday and seasonal fluctuations in demand.

Figure 6-4 People's Express RPM by Month From 1983 - 1986.



Source: DoT

As Figure 6-4 shows seasonal fluctuations at People Express became larger as the company grew larger. The main fluctuations follow the main summer holiday months of July and August. In 1986 the September level fell below the level in 1984 a very large drop in demand. If the revenue passenger miles (RPM) for September each year are examined one can spot a trend where the reduction in RPM is increasing from 1983 until a large drop occurs in 1986. Conversely, an increase in demand occurs in March and December every year, that becomes increasingly larger until 1986. The figure shows clearly how People Express was subject to ever increasing fluctuations in RPM's and its inability to counter these with increased emphasis on business passengers.

Table 6-4 shows new-entrant's ASK and its yearly growth. The average growth for all new-entrants listed in the table is quite high or 39.6 percent from 1980 - 1991. The airlines showing average growth over 100 percent are Muse Air and People Express, but both had high growth in the year following initiation, the reason being that they started operations around mid year; Muse initiated operations in June 1981 and People Express in April 1981. As a result the growth numbers become inflated for the following year. If the average excludes the first year the growth becomes 49.3 percent for Muse and 76.3 for People Express. It is nevertheless apparent that the growth of Muse in the first one and a half years was quite high but one has to take into account that the initial capacity it offered was low compared to People Express and New York Air.

Carriers growing in the 80 to 100 percent band were Air Atlanta and America West. Air Atlanta started operations in February 1, 1984 so the first year counted eleven months. America West started operations on August 1, 1983. In order to cast light on the level of growth during the first two years one can project a hypothetical full year operation during the first year at America West by dividing the capacity of the five months of operations by five and then multiplying by 12 giving the possible full year capacity. Upon using this method the total projected capacity for the first year becomes 1869.4 and the growth rate for the second year becomes 204.4 percent. Hence it is apparent that the growth was high even though operations began in August 1983.

Airlines growing in the 40 to 80 percent band were Empire with 70.1 percent, Florida Express with 58 percent, World with 50.2 percent, Midway with 46.6 percent and New York Air with 41.6 percent. Although most of the airlines in the table have failed, but for Midwest Express, Southwest and Tower, it is impossible to generalise on whether high growth as such is the main contributing factor to the new-entrant's demise.

Table 6-4 New-entrants' ASK Yearly Growth[208]

ASK Growth %	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*Mean growth %*
Light-speed													
Muse Air			508.3	7.5	53.5	16.9							164.1
People Expr.			239.8	159.6	80.5	63.3	1.7						109,0
Hyper													
America W.					390.5	-1.7	127.0	94.8	16.2	12.8	34.1	11.9	85,7
Air Atlanta						123.0	47.9						85,5
Empire		149.1	11.5	105.3	71.0	13.6							70,1
Florida Exp.						98.9	59.2	16.0					58,0
World		279.8	-0.7	0.4	50.0	-1.0	-27.4						50,2
Very rapid													
Midway		109.8	51.0	5.9	-24.8	127.1	94.8	32.9	19.4	15.0	35.1		46,6
New York			51.0	-4.8	33.4	76.8	51.7						41,6
Midwest Exp							34.3	4.9	69.8	77.2	43.6	9.4	39,9
Republic	132.3	69.4	10.3	7.3	4.2	7.4	14.9						35,1
Capitol Air		116.9	60.6	-37.9	-2.5								34,3
Arrow Airw.					117.0	-27.0	5.1						31,7
Air California		43.7	10.6	-58.1	33.4	76.8	67.9						29,1
Aspen						67.6	4.7	19.8	9.9				25,5
Jet America					59.9	13.6	3.0						25,5
Rapid													
Sunworld						45.0	52.2	-22.1					25,0
Tower						6.4	-5.5	65.5	41.5	3.3	-5.9	39.2	20,6
Air Wiscons.					42.7	28.3	29.1	9.1	15.3	10.9	10.0	16.9	20,3
Southwest		36.0	21.5	28.9	26.2	9.2	15.1	14.2	16.7	10.6	11.3	22.1	19,3
Air Florida		77.1	-5.8	-19.3									17,3
Normal													
Horizon Air							14.3	6.8	17.5	-22.2	61.9	9.2	14,6
Braniff II						-19.6	52.4	8.4	26.0	-6.9			12,1
PSA		7.0	18.6	16.2	2.6	-10.2	49.5	4.0					12,5
Negative													
Mid Pacific						0.3	0.7	-12.2					-11,2
Presidential								-43.2	-21.5				-32,4

Compiled from DOT Form 41. Please note that empty cells in the table are for years during which the carrier was not operating, or due to non-availability of data.

However, if one examines the table it is apparent that many of the carriers increased capacity intensively just before their demise. Air California increased capacity by 144.7 percent in its last two years of operations, Empire by 189.9 percent in last three, Midway by 35.1 percent in the last year, Muse Air by 70.4 in last two, PSA by 53.5 in last two, People Express by 63.3 percent and Sunworld by 52.2 percent in the year before closing down but it cut down capacity by 22.1 percent in the last year, World by 50 percent two years before closing but cut down capacity by 28.4 percent the following two years.

It is quite common according to the table that following high growth period there is sudden drop or cut-back of capacity. This shows a marked contrast with Southwest that grows at a rather constant rate. The reason for new-entrant's tendency to grow

[208]In his book Growing Pains, Eric G. Flamholtz proposed some rules of thumb regarding classification of the intensity of companies' growth rates. He considered a growth rate of 15 percent per annum or less to be 'normal' growth, 15 to 25 percent as 'rapid', 25 to 50 percent to be 'very rapid', 50 to 100 percent to be 'hyper' and growth in excess of 100 percent to 'light-speed' growth. Table 6.4 has been segmented according to this proposition in order to show the intensity of new-entrants' growth. The growth rates are based on capacity rather than revenue growth.

fast may be an urge to achieve critical mass in order to be more competitive in the market.

6.4.3 Demand

The airline's passenger load-factor is the most widely used indicator of the airlines' well-being. However, the load-factor has its limitations pertaining to its lack of indication as to the financial health of the airline. There is no use in maintaining a high load-factor if the demand is stimulated by too low fares. The competition environment does prompt airlines to offer such fares in the hope of increasing and maintaining market-share or fending off an aggressive competitor.

Trends in the table worth mentioning are, for example, the fact that the two new-entrants with highest load factors are both charter-originating new-entrants operating primarily on long-distance routes. Tower Air has done rather well through the years due to its very narrow niche, flying between the US and Israel. Capitol, on the other hand, had extensive problems during its period of scheduled operations, which indicates that the high load factor was not enough to fend off losses. American Trans Air, Arrow Airways, World and Carnival are also charter based, all having fairly high average load.

One of the explanations of higher load-factors at charter-based new-entrants may be their greater liberty in cancelling flights in order to consolidate poorly booked flights. This is supported by the high complaint rates that indicate customer relations problems of this type at charter-based new-entrants.

To further the point of non-relationship of load-factors with financial well-being of airlines, one can examine Braniff II, but it had high load-factors in spite of all its financial problems and undulating strategy. The reason was its competition at its Dallas-Forth Worth hub, where two stronger competitors retaliated fiercely against this largest airline start-up in history, leading to a scaling down of operations soon after operations started both in terms of applied aircraft and cities served. In fact, the cities served were cut down by half six months after start-up.[209] This way the airline maintained its load-factor although it had cost drastic fare cuts in the face of the high unit costs of its full service strategy.

There are two main reasons for low load-factors, one is over-capacity on routes either due to too high frequency or high fares. Thus, it is not uncommon for carriers offering premium service geared towards business travellers to have lower load factors than low-fare or mixed carriers. Air Atlanta, Muse Air and Air One fit this profile. One can point out that Air Atlanta was well capitalised but could not sustain the low load-factors it had in the beginning. Although, the load-factors improved, the airline was not able to sustain operations. Load factors do not indicate how well the production plant, the aircraft, is utilised. Air Atlanta, for example, had problems due to the drop in traffic during the weekend, unlike People Express that had

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[209] The Avmark Aviation Economist, Braniff Airlines: Expansion - without repaeating history?, November 1987. p. 16.

problems during mid-week. The difference of the two carriers' problems being their strategies in terms of market segments served.

Regional based new-entrants show medium to low load-factors. These carriers are usually operating a mixed fleet of prop and jet equipment on very short-haul routes. Their operations are linked with an incumbent's operation making it less able to compete for load as departures are guided by the incumbent. Regional originating new-entrants' loads are usually composed heavily of business passengers, leading to higher yields.

Table 6-5 New-entrant Airline's Load Factors

Airline	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*'92*	*Ave-rage*
Charter														
Tower				86.5	82.9	88.9	81.7	89.3	85.5	88.7	85.7	78.4	76.0	84.4
Capitol Air	77.4	80.4	77.9	77.0	72.5									77.0
American Tr.							60.6	73.5	67.0	88.9	74.1	78.2	70.4	73.2
Arrow Airw.				67.7	71.2	74.2	67.8							70.2
World	62.2	77.3	66.5	64.8	65.3	70.8	66.4							67.6
Carnival											65.4	69.1	63.2	65.9
Start-up														
Pacific East				72.3	79.7									76.0
Florida Exp.					68.0	69.4	66.7	63.9	63.1	55.9				64.5
Braniff II						68.0	57.7	65.5	64.7	62.8				63.7
People Expr.		58.3	61.2	74.6	69.8	61.1	57.2							63.7
Jet America			64.6	71.3	59.3	66.4	60.2	56.3						63.0
Air Florida	59.0	64.3	59.5	62.4	66.2									62.3
Braniff III												56.4	66.4	61.4
MGM Grand								69.2	63.1	73.7	56.2	53.7	50.2	61.0
America W.				51.7	52.5	62.4	61.0	56.1	57.9	57.7	61.0	63.6	61.4	58.5
Pacific Expr.				57.1										57.1
Sunworld				52.6	51.9	59.3	51.7	56.5	69.1					56.9
New York A.	51.0	62.7	54.9	57.3	56.0	56.4	54.1							56.1
Republic	50.2			54.4	50.1	58.8	60.1							55.9
Mid Pacific							58.1	53.5						55.8
Midway	49.2	59.7	55.4	48.4	50.9	58.1	59.0	57.4	56.0	56.8	58.5	58.8		55.7
Midwest Exp					23.7	38.8	55.7	65.1	65.4	60.0	56.2	54.7	55.7	52.8
Kiwi													52.6	52.6
Air One				47.4	50.8									49.1
Golden West		46.9	51.3											49.1
Cascade		48.5	47.7											48.1
Presidential							46.1	47.3	46.0	49.4				47.2
Muse Air		35.8	41.8	50.9	47.1	47.0								44.5
Regional														
Aspen	55.9	49.9	55.3	na	na	49.8	48.9	46.6	49.5	53.2	55.0	61.8		52.6
Horizon Air						50.4	51.4	50.4	49.9	52.3	49.6	51.5	53.6	51.1
Air Wiscons.	55.8	51.8	46.3	42.7	40.5	51.6	48.8	46.9	na	na	45.5	45.2		47.5
Imperial		44.2	50.8											47.5
Empire	51.2	56.1	47.8	47.3	43.4	40.7	40.6							46.7
Markair						42.4	44.5	47.2	49.6	50.0	47.5	38.6	38.4	44.8
Air Midwest				40.9	41.9									41.4
Intrastate														
Southwest	68.2	63.6	61.6	61.6	58.5	61.2	58.3	58.9	57.7	62.7	60.6	61.1	64.5	61.4
Air California	67.8	58.2	51.4	58.2	55.1	56.6	53.2	54.5						56.9
PSA	55.4	53.0	54.9	55.2	53.4	56.5	56.0	55.7	51.4					54.6

Compiled from DoT Form 41.

Many of the new-entrants experienced sudden reduction in load factors in the year of failure. The explanation is the tendency of travel agents to 'sell away' due to 'rumours' of imminent failure. Another explanation is of a similar nature and has to do with increased competition intensity from the rivals as soon as the word of financial problems spreads around.

6.5 Finance

6.5.1 Access to Capital

Initial capitalisation is important for the future performance of any new venture. Airlines are especially capital intensive compared to other new-ventures, not only in terms of aircraft acquisition, but also in terms of financing of fast growth. Start-up financing can be divided into several sources: (i) Term loans; (ii) private placements; (iii) public financing (bonds and stock); and (iv) revolving credit.

Table 6-6 shows few examples of new-entrants start-up financing. Note that FAA loan guarantees were higher than total initial capitalisation of People Express and Midway. Furthermore, on can see that high capitalisation is no guarantee of success as Braniff II and Muse Air both folded despite being well capitalised initially.

Term loans are usually for more than one year but less than 15 years and amortised regularly during the term. Private placements, on the other hand, are direct business loans just like term loans but with maturity of more than 15 years. Such loans are usually secured on assets, stocks, bonds or equipment. The advantages of term loans and private placements are the avoidance of costly Security and Exchange Commission filings, flexibility of changing the loan indenture as there is only one lender and less time to arrange the loan than it is for bonds or public financing. The disadvantages are high drain on cash as the loan is amortised regularly and places commitment on the borrower due to the long term relationship with the lender (the lender may want to be represented on the board of directors).[210]

Public financing is usually in two basic forms, bonds and stock. These are usually called fixed income securities. Public financing requires the service of investment bankers. With a bond offering, the investment banker carries some risk as 'underwriter' that is the function of issuing bonds for distribution, during which the distributor bears the risk of fluctuation in bond prices.[211]

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[210] The private placement market declined substantially in the early nineties due to less participation of life-insurance companies and the increase in the availability of public financing to lower quality issuers.

[211] When the investment banker decides to become an underwriter for a bond issue, he will pay the company the face value of the bonds less the commission and then distribute the bonds to buyers, a function that can take a considerable time in some instances. This risk bearing of the investment banker leads to a necessity of good relationship between the company and the banker often requiring a considerable investigation into the companies affairs before the banker will accept being an underwriter. In the case of start-up companies the founders will have to sell the idea and prove to the bankers that it is worthwile in terms of return on investment before they will consider it. Many start-up airlines never get past this hurdle and can not gain enough capital to start. If a company can secure the consent of an investment banker to become an underwriter it is called a flotation. Both preferred, common stock and bonds fall under this term. Flotation can be costly for the company, proportionally more expensive as the flotation is smaller. Bond flotation is considered to be less costly than stock flotation and common stock flotation to be more expensive than preferred stock offering. The cost as a percentage of the total flotation can range from as low as 0.10 percent for large offering of 100 to 500 million dollars up to 10 percent for offering of less than 500 thousand dollars. Common stock carries woting rights at annual meetings and entitlement to a share of the companie's net profit in the form of dividends. The company can, however, withold profits if it is felt to be in the companies best interest to reinvest it to secure future profitability or to abstain bankruptcy. The advantages of common stock is that the company doesn't necessarily have to pay dividends, it doesn' have any maturity but is bough and sold, after issuance, on the market. Stock issuance is sometimes more recepetive on financial markets than debt issuance due to its higher expected gains than bonds or preferred stock and

Revolving credit is a financial package that can be drawn for any purposes but are often used to resolve short term capital needs until other financing has been arranged. America West just as People Express gained the use of a revolving credit facility. In April 1990 America West secured a $50 million revolving credit that it used just like working-capital to bridge loans and other short-term needs. The credit was arranged by five banks that played a role in the carrier's secured financing. The money was used immediately to finance the airline's expansion applying $40 million to finance the acquisition of a Boeing 747.[212]

There were five airlines that entered a positive market for equity financing at the dawn of deregulation. These were Midway,[213] New York Air, People Express, Muse and Jet America. The later new-entrants had a harder time finding start-up capital as the first round of new-entrant airlines were not financially healthy.[214]

According to Ronald Schmid new entrants will not have much probability of success unless they are well capitalised and have access to lease finance packages. In his view, the reluctance of banks and leasing companies to finance aircraft for new-airlines can seriously inhibit the access of new-entrants and undermine the regulatory efforts to enhance competition.[215]

Due to the recession of the 1990's there were low cost aircraft and economical financing arrangements available to new entrants, that led to a rising number of new entrants in the United States during 1992 and 1993. Thus, it is apparent that the cost of aircraft and the willingness of leasing companies and banks to provide new airlines with agreements on favourable terms is closely linked with the number of new airlines being formed.

New-entrant airlines are rated lower by aircraft financing companies than incumbent carriers. Thus, right from the outset new-entrants are at a disadvantage. In view of how large a portion the aircraft acquisition is in the total cost structure of an airline this must be viewed as a major handicap for a new-entrant.

One important aspect of the early deregulation in the United States was an option in the law to lower the financial barriers of entry for a period of time. This option was

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because of capital gains being taxed at a lower personal income tax brackets than interest on debt. The disadvantages are the possibility of the founder's loss of control as voting rights are extended to new stockholders. That is one of the main reasons why many companies avoid the issuance of common stock. The cost of underwriting and distributing is considerable higher than for other issuances and the dividends are not deductible as an expense for the company as interest payments on bonds are. Preferred stock has claims and rights ahead of common stock but behind bonds. Preferred stock does usually not carry voting rights. They usually carry a prefered dividend, meaning that the company will service preferred stock ahead of common stock in terms of dividend payments, but the company does not have to pay dividends to preferred stockholders if the operating environment does not allow such a payment.

[212] Airline Executive International, America West Leaders Learn from Lorenzo's Example, June 1990, p. 20.

[213] Midway actually led the way after having spent over three years trying to obtain financing for their up-start, the followers actually benefited from their pioneering work.

[214] Op. cit. (Meyer), p. 119.

[215] Schmid, Ronald, Air Transport within the European Single Market - how will it look after 1992?, Air & Space Law, Vol. XVII, No. 4/5, 1992. p. 202.

the Deregulation Act's revival and expansion of the FAA's Aircraft Loan Guarantee Program.[216] Under this scheme the FAA could guarantee a loan up to $100 million for a period of up to 15 years, given that the carrier could not obtain uninsured financing on reasonable terms elsewhere.[217]

Table 6-6 Start-Up Financing Obtained by New-entrants

Airline	*Capitalisation*	*Type of capitalisation*	*FAA loan guarantees*
Southwest	$ 8 m	Stock $7m[218]	
	(Pre-deregulation)	Debt $1.2 m[219]	
People Expr. '80	$ 25 m	Stock $24 m[220]	$58.0m
		Private contr. $1 m[221]	
America West	$33 m	Equity	
Braniff II	$71 m	Loan $38 m	
		Equity $ 20 (Hyatt)	
		Cash $13 m[222]	
Midway	$13.7 m	Equity 11.7 m	$24.1m
		Bank credit 2 m	
Jet America '81[223]	$23.4	Equity 12m ('81)	
		Principals equity 1.2m	
		Convertible subordinated debentures 10 m ('82)	
New York Air[a]	$33.2 m		
Muse Air[a]	$110 m		
Pacific Expr.[a]	$30 m		
Reno Air	$8.0m	Private investors $2m, Stock and stock warrants $6.0m (IPO)	
UltrAir			
ValuJet (Former charter)	$17.4m	$3.4 from founders, $14m private placement(IPO).	
Kiwi Intern.		Employees, mostly pilots $10m. Rombac $1m. Credit line $1.7m, $1.5m loan guarantee.	
	$14.2m		
USAfrica		$12m bridge loan financing, mutual fund and small pension fund financing	
	Total na.		

The Loan Guarantee Program insured the lender against default, thus, allowing the carriers to achieve substantially lower rates on capital than was prevailing at the time, given the risk involved. According to Meyer there were 149 aircraft bought under the scheme, by 20 carriers during an initial three year period from the beginning of deregulation. New-entrants received 85 per cent of the total amount guaranteed and

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[216]The program included commuters, intrastate and charter carriers.

[217]Op. cit. (Meyer), p. 112-113.

[218]Common stock, $1 par value, 2.000.000 shares authorized, 1,1058,758 issued at Desember 31, 1971 at $1 par value. Capital in excess of par value $6,012,105.

[219]7% convertible promissory notes.

[220]3 million shares at $8.5 per share. (No airline had raised start-up money with stock-offering before.)

[221]Burr put up $355,000; Gitner $175,000 and other managing officers $20,000 to $50,000 each. FNC Capital Corp., subsidiary of Citicorp. put up $200,000.

[222]From Braniff I, bankruptcy estate. Dalfort Corporation an affiliiate to Hyatt Corporation was the original stockholder of Braniff holding 93 percent of the voting power.

[223]Air Transport World, Jet America is beginning to see daylight, October, 1983, pp. 49-50.

thereof New York Air, People Express, Midway Airlines and Muse Air, 23 per cent.[224]

The benefit of the Loan Guarantee Program for the new entrants, was:

> **... loan guarantees reduced the debt service drain on cash flow by lowering interest rates, extending the loan terms available, and, most important, making financing possible where it had previously not been available.**[225]

The Loan Guarantee Program was criticised by the existing carriers as unfair. As a result, important changes were made to the program; first, there was imposed a $100 million ceiling in 1982; second, there was a limit as to the size of aircraft purchased under the scheme. The limit being less than 60 seat and 18.000 pound aircraft. This wiped out the availability of this program to new jet operating airlines as they were all considering aircraft larger than 60 seat.

To conclude one can state that access to capital is the single largest obstacle to starting-up an airline. The early new-entrants can not be said to have suffered from under capitalisation but the new-comers had less funding, leading to increased dependence on debt capital.

6.5.2 Aircraft Acquisition

Aircraft acquisition is the single largest cost item in running an airline and the largest in terms of capital intensity. Most new-entrants have had to decide whether to own or lease. Leasing is the most common way to acquire aircraft for new-entrants due to its greater flexibility and lower initial capital requirements.[226] Furthermore, leasing was treated as cost rather than debt, therefore, not affecting the carriers debt structure. As a result, there was greater flexibility to acquire capital and add debt.[227]

Examining Table 6-7 one can see that most new-entrants started by leasing aircraft rather than buying. People Express, however, started out by buying large number of aircraft in one lot of twenty two in all. No other new-entrant has taken such a bold step in initial equipment acquisition, until Braniff II leased 30 idle ex-Braniff I 727's. It must be noted, however, that People Express bought theirs and had much lower initial capitalisation than Braniff II. This large initial fleet seems to have caused Braniff II much trouble, while People Express seemed to be able to absorb the

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[224]Op. cit. (Meyer), p. 113.

[225]Op. cit. (Meyer), p. 112.

[226]There are number of different leasing forms in the airline industry; (i) leveraged lease (tax-lease); (ii) Japanese levereged lease; (iii) US ownership - FSC; (iv) German tax-based lease; (v) European export credit; (vi) Commission - FSC; (vii) US Eximbank; (viii) UK tax lease; (ix) French lease. See Airfinance Journal, Handbook 1993/94, May 1993, No. 150.

[227]Following deregulation lower fares and increased disposable income in the developed world, led to a thriving aircraft leasing business due to airlines rapid growth leading to their need to add aircraft without being able or perhaps willing to add debt. This development led to the formation of aircraft leasing companies, that reduced risk for banks as now the banks would lend the lessor that could repossess aircraft much faster than the banks would, in the event of bankruptcy or lease payments default. As a result, the financially poor operators could acquire aircraft faster and easier and in larger numbers than before. This, occurred for new-entrants just as well as other carriers.

capacity of its 22 Boeing 727 aircraft very quickly. One explanation is that Braniff II started operation in a much different air transport world, than People Express did in 1981.

In a growth market airlines tend to expand by acquiring aircraft at premium lease rates. Since the leasing companies pursue to minimise their risk and new-entrants are dependent on favourable lease terms in order to be cost competitive, the availability of suitable leasing agreements may be fairly limited.

Table 6-7 New-entrant's Aircraft Acquisition

Airline	*Type of initial aircraft and financing*	*Classification of financing arrangements*
Air Atlanta	Bought five 727-100s and arranged for sale/leaseback with General Electric Credit Co.[228]	Leased
Air California	In 1984 signed up for 12 737-300s to be delivered in 1985, leased from International Lease Finance.	Leased
Air Florida	Various schemes due to aircraft trading. Utilised the Loan Guarantee Program to finance a $85m transaction, financed five 727-200 Ad. under 'cross-border tax leasing' (double dip) were lenders in the US and UK get tax breaks which they share with the airline in lower lease rates. [229]	Leased and bought
Air 1	Seven 727-100s bought from Pan Am and Piedmont for $2.5m each.[230]	
America W.	18 used 737-200s on lease, lease-purchase or purchased. Leased 737-200s from International Lease Finance. (two purchased for $5m and some from GPA) Three aircraft delivered in 84 purchased for $39.1m) In 1989 AW owned only 17 of its 86 airplanes the rest was leased.[231]	Leased and bought
Braniff II	30 Boeing 727-200s in 1984 leased from Braniff's I bankruptcy trust. (initially at $2.7 million per month)	Leased
Empire	Two bought directly from Fokker del. 1980, Four F-28's bought through bidding, two purchased from Altair Jets. Aircraft were financed through public offering.	Bought
Florida Exp.	20 F28-200s, 400s(6) one half is leased from IMM under long-term non-cancellable leases and the other half is was purchased by the carrier.	Leased and bought
Horizon Air	Two F-28s bought	Bought
Jet America	Leased two MD-80s from McDonnell Douglas Finance Corp. and GATX.	Leased
MGM Grand	Three Regent Air's 727's bought in 1987 for $16.5m and three Air Italia's DC-8-62s for $16m.[232]	Bought
Midway	Three leased DC-9-10s from McDonnell Douglas. In 1989 the carrier sold and leased back 16 DC-9-30 to cover the acquisition of Eastern' assets in Philadelphia of which the 16 aircraft belonged.[233]	Leased
Midwest Exp	Two DC-9s bought for $2.7m and $3.3m and a DC-9-14 bought in 1983 for $3.5m. K-C Aviation a subsidiary of Kimberly Clark bought the aircraft for Midwest Express that is also a subsidiary of K-C.	Bought
PSA	Bought 30 MD-80, 20 BAe 146s, 4 DC-9-30s from 1978 to 1986. With the 146s starting service in 1984.	Bought
People Expr.	Bought 22 737-100s for $90m in 1981. Bought 4 737-200s in 1982. Bought 20 727-200 for $4.2m each and leased 1 747 from bankrupt Braniff, 10 used 727s from McDonnell Douglas at $4.2m each and 15 727-200 adv. from Delta for $91m. The latter two purchases were not delivered all at once but was spread to 1984 also. In 1984 the carrier leased two more 747-200 and 100.	Bought and leased(only 747s)
Southwest	Bought initially four 737s for $16.2m(1971). In January 1982 it operated 25 owned b737-200 adv., by 1986 it operated owned 17 B737-300s and owned 46 B737-200s. In 1991 it leased three ex-AirCal 737s and bought 11 new 737s bringing the fleet to 120 737s. Southwest unlike other carriers tends to add used aircraft to the fleet during recessions due to better prices this is possible for it due to its strong financial status.[234]	Bought (few leased)

[228] Op. cit. (Air Atlanta Works..., ATW 6/85), p. 45.

[229] Op. cit. (Air Florida..., ATW 8/82), p. 44.

[230] Op. cit. (Air 1 Expansion..., ATW 8/84), p. 47.

[231] Op. cit. (ATW 12/89), p. 30; and (ATW 6/89), p. 60-61.

[232] Op. cit. (Coddling the rich ..., ATW 4/91), p. 54.

[233] Op. cit. (The (new) Philadelphia..., ATW 12/89), p. 87.

[234] Airfinance Journal, Southwest Stays in shape, May 1993, no. 150, pp. 10-12., and ATW 7/91 pp. 33-36., and Lloyd's Aviation Economist October 1994, p. 28.

When the market situation is reversed as occurred in the early 1990's, lessors are faced with rentals that may not cover the loan payments or even idle aircraft. In such a situation the leasing company will offer terms that cover some of the loan payments rather than maintaining idle aircraft in the lease portfolio and face financial ruin or bankruptcy as a result. In this market situation the conditions for starting an airline become favourable.

Many new-entrants have tried to minimise the effect of aircraft acquisition on cash-flow and the debt structure by acquiring older aircraft during stagnation or declining values, usually during economic recession, leading to entry during periods of economic recession, when market rivalry is more intense. Nevertheless, most of the new entrants have enjoyed high growth rates (see Table 6-4). This has placed intense pressure on financial resources making leasing the most viable option to acquire aircraft at a faster pace without too much harm to the balance sheet. Such alternative does, however, place extra burdens on the airline's cash-flow.

6.5.3 Profitability

Airlines are highly sensitive to customer trust, as the customer usually buys a ticket in advance in good faith of it being honoured on the day of travelling. The ticket, therefore, is like a short-term investment to the customer. In the meantime, that is from the time when the ticket is bought until it is used, the passenger wants to be assured that the airline will still be around when he undertakes the trip. As a result, any rumours of bankruptcy will reduce the number of potential travellers willing to use an airline subject to such adversities. What is worse, the travel agents will avoid booking the airline. If they use it they might mark another airline as the designated airline meaning that the revenue will go to that airline first and then to the troubled carrier, delaying the troubled carrier's use of the cash for some weeks. This will, however, increase the passenger's ability to recover the fare in case of failure. Thus, a rumour of imminent failure of a carrier will result in sudden drop in cash-flow and affect profitability dramatically. In conjunction to other factors this drop in demand can result in large losses.

Airlines that have been affected in this respect are America West that showed dramatic drop in profitability in 1991 with operating losses mounting to 104.7 million. Other examples of a sudden drop in profitability in the last year of operations: Braniff whose losses ran from 13.1 million to 57.6 million in 1989, Midway that increased losses from 13.5 to 84.5 and People Express from an operating profit of 33.4 million to a 123.6 million loss in 1986. The drop in demand is, of-course, not the only reason, but a contributing factor when financial health is out of hand.

The table on the next page shows that new-entrants have not been profitable in the long-term, with few exceptions like Southwest amd Midwest Express. It is only recently that new-airlines and incumbents alike have started to pay attention to Southwest's profitable strategy. No other sustainable new-entrant strategy has worked in the long-term, but that of Southwest. Perhaps the slow growth feature of that strategy is what counts more than anything else in this regard.

Table 6-8 New-entrants' Operating- and Net Profit 1979 - 1992

Op. profit Net profit $	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*'92*	*Cumul ative*
Regional														
Air Wiscons.				8.1	10.1	5.7	6.2	14.1	22.7	1.6	0.7	-26.8		42.4
				4.0	4.4	1.9	3.1	6.1	17.8	0.4	1.3	-37.3		1.7
Horizon Air						-3.3	-0.9	2.9	2.8	-2.5	0.6	8.0	7.3	14.9
						-9.1	-3.7	-5.1	2.6	1.9	1.1	3.6	3.3	-5.4
Empire		1.0	-0.7	4.6	6.1	-1.5								9.5
		0.5	0.5	20.1	2.3	-4.2								19.2
Aspen						1.4	-0.7	-1.1	-0.6	-5.4	-2.0			-8.4
						0.4	-0.2	-1.3	-0.1	-5.5	1.4			-5.3
Intrastate														
Southwest	48.8	48.5	39.2	68.6	68.6	70.3	81.3	41.3	86.1	97.6	81.6	62.0	181.8	975.7
PSA	2.6	-16.0	-17.4	-10.0	31.0	31.9	23.0	20.6						65.7
	4.2	22.7	18.6	-12.6	-4.8	-0.6	-3.1	-24.7						-0.3
Air	12.2	0.3	-20.7	17.3	24.5	12.8	3.7							50.1
California	9.9	4.4	-24.0	3.4	11.2	9.3	-1.6							12.6
Air Florida	9.5	-12.1	-33.5	-5.8										-41.9
Start-up														
Mid Pacific		-0.9	2.4	2.4										3.9
		-1.1	0.5	2.7										2.1
Midwest Exp						-3.5	-1.6	5.3	5.7	7.5	5.1	0.6	4.1	23.2
						-1.8	-0.3	3.2	3.8	4.8	3.0	0.1	2.0	14.8
Muse Air		-5.5	-4.7	4.6	-3.3	8.3								-0.6
		-4.0	11.5	-2.0	-17.0	-8.7								-20.2
MGM Grand								0	-0.5	na	-4.1	-3.5	0.1	-8.0
								-2.4	-5.4	-2.6	-15.0	-8.9	-14.7	-49.0
Jet America				-8.3	-1.4	3.0	2.0	-1.6						-6.3
				-8.8	-3.1	-3.7	-8.5	-15.8						-39.9
Florida Exp.					-1.6	5.2	3.8	-13.8						-6.4
					-3.1	4.1	1.9	-12.1						-9.2
Sunworld					-0.6	2.5	-4.6	-18.6						-21.3
					-5.3	2.5	-5.3	-15.2						-23.3
New York A.		-9.5	-12.4	8.6	-0.6	7.2	-11.1							-17.8
		-11.6	-23.3	4.5	-6.8	-2.4	36.1							-3.5
People Expr.		-7.2	10.5	19.6	20.2	33.4	-123.6							-47.1
		-9.2	1.0	10.4	1.7	-20.1	-198.5							-214.7
Air Atlanta					-19.7	-14.2	-14.4							-48.1
					-23.1	-45.5	-19.4							-88.0
Midway	-4.5	8.8	4.5	-12.3	-12.9	0.9	11.1	25.0	13.5	-13.5	-84.5			-63.9
	-4.9	7.6	0.3	-15.0	-22.0	-3.6	9.0	13.0	6.5	-21.7	-139.2			-17.0
Presidential							-26.0	-32.2	-13.1	-10.2				-81.5
							-24.0	-28.5	-15.2	-15.6				-83.3
America W.				-6.5	-8.6	18.7	4.0	-35.4	18.1	48.1	-31.6	-104.7		-97.9
				-6.3	-15.4	11.4	3.0	-45.7	9.4	20.0	-74.7	-222.0		-320.3
Braniff II					-91.1	18.6	-12.3	-17.8	-13.1	-57.6				-173.3
					-75.4	15.2	-9.0	-10.4	-19.8	-146.9				-246.3
Charter														
Tower					-1.0	2.0	3.2	9.0	10.8	10.2	11.7	19.0	9.1	74.0
Capitol Air	-3.4	4.5	-13.0	-10.7	-0.6									-23.2
	-5.4	20.5	-21.2	-11.2	-1.6									-18.9
Arrow Airw.					-15.1	-0.1	-3.8							-19.0
					-13.6	0.2	-3.8							-17.2
World	-28.8	9.6	-30.5	-1.3	-13.3	-2.0	-66.4							-132.7
	-28.2	-20.2	-58.4	-29.4	-18.0	-14.9	-28.0							-197.1

Compiled from DoT Form 41.

6.5.4 Cost Structure

The new-entrants had cost advantage over incumbent carriers that had been operating under the regulation regime where profits were almost guaranteed by the fare control mechanism of the CAB. As a result, there had been less incentive to control costs then there would be in a fully price competitive environment. Therefore, the start-up new-entrants could exploit the cost advantage they obtained by their youth and the

intrastate new-entrants could utilise their experience of operating in a competitive environment.

Table 6-9 Comparison of Average Pay Per Employee in 1985[235]

Incumbent Airline	*Average pay per employee*	*New-entrant Airline*	*Average pay per employee*
	1985		*1985*
Incumbents		*Regionals*	
Delta	46,862	Air Wisconsin	31,825[a]
TWA	46,106	*Intrastate*	-
USAir	44,949	PSA-Pacific Southwest	43,968[b]
United	42,792[a]	Southwest	36,615
American	42,777	Air California	31,910
Northwest	42,617	*Start-up*	*Avg. 37,498*
Eastern	41,888	Braniff II	26,663
Pan Am	38,885[a]	Midwest Express	22,195
Western	36,316	America West	21,619
Piedmont	34,341[a]	New York Air	19,908
Continental	23,205	Muse Air	18,762
Incumbents' Average	**40,067**	Midway	17,015[b]
		People Express	16,918[a]
		Presidential Airways	16,184[b]
		Sunworld	10,270
		Charter	*Avg. 18,837*
		Tower Air	21,022
		World Airways	15,514
			Avg. 18,268
		New-entrants' Average	**23,359**

[a] 1984 data. [b] 1986 data.

The start-ups could operate without unionised staff with lower wage scales and more flexible job descriptions. This is reflected in Table 6-9, that shows average pay per employee. The table shows clearly that new airlines benefit from lower wage scales. In 1985 the average yearly salary per employee of the new-entrant carriers shown in the table, was a low $23 thousand, while the incumbents average was $40 thousand. This difference is very large in view of the labour intensity of airlines. Looking at the table closer it becomes apparent that there is considerable difference between the various sub-groups of new-entrants, as intrastate new-entrants have similar wage scales as the incumbent carriers, while start-up and charter new-entrants pay about 50 percent less in wages per employee.

Start-up carriers have the lowest cost structure among the new-entrants, while the intrastate and charter based new-entrants occupy the middle ground and regional based new-entrants tend to have the highest costs. This means that to be competitive some of the new-entrants had to focus on reducing costs just like the incumbents have had to do. A regional carrier like Empire, that started jet operations would have a cost disadvantage compared to a start-up carrier like People Express.

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[235] Incumbent data: Kenneth Button, The Deregulation of U.S. interstate aviation: an assessment of causes and consequences (Part 2), Transport Reviews, 1989, Vol. 9, No. 3, pp 189-215. New-entrant airlines data: Compiled from DoT Form 41.

Table 6-10 New-entrants' Costs - U.S. - Cents per ASK

Airline	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*Mean*
Regionals													
Empire		0.133	0.118	0.107	0.105	0.106							0.114
Aspen						0.120	0.127	0.133	0.138	0.129	0.165		0.135
Air Wiscons.				0.157	0.138	0.186	0.141	0.144	0.142	0.133	0.128	0.128	0.144
Horizon Air						0.129	0.128	0.165	0.142		0.146	0.142	0.142
Premium													***0.134***
Air Atlanta					0.108	0.111	0.122						0.113
MGM Grand								0.292	0.189	0.206	0.199	0.142	0.206
Midwest Exp						0.094	0.096	0.118	0.103	0.090	0.079	0.072	0.093
Intrastate													***0.137***
Southwest	0.058	0.053	0.054	0.052	0.049	0.050	0.042	0.044	0.043	0.044	0.045	0.040	0.048
Air Florida	0.102	0.080	0.080	0.069									0.083
PSA	0.083	0.083	0.074	0.072	0.070	0.087	0.069	0.069					0.076
Air California	0.094	0.085	0.079	0.076	0.078	0.078	0.069						0.080
Start-ups													***0.072***
People Expr.		0.063	0.051	0.040	0.043	0.040	0.041						0.046
Jet America			0.058	0.052	0.053	0.051	0.045						0.052
Muse Air		0.096	0.052	0.047	0.045	0.040							0.056
Braniff II					0.070	0.047	0.044	0.048	0.051	0.054			0.052
America W.				0.056	0.074	0.050	0.049	0.046	0.047	0.050	0.049	0.048	0.052
Sunworld					0.058	0.061	0.061	0.068					0.062
Florida Exp.					0.066	0.066	0.060	0.065					0.065
Midway	0.104	0.099	0.086	0.076	0.090	0.083	0.060	0.054	0.052	0.054	0.056		0.074
New York A.		0.096	0.087	0.092	0.090	0.081	0.069						0.086
Presidential							0.051	0.077	0.085	0.086			0.075
Charters													***0.062***
World	0.102	0.080	0.068	0.055	0.045	0.046	0.056						0.065
Capitol Air	0.097	0.062	0.057	0.059									0.069
Tower					0.088	0.099		0.094			0.082	0.079	0.088
Arrow Airw.					0.112	0.111							0.111
Mean	*0.092*	*0.085*	*0.072*	*0.072*	*0.077*	*0.083*	*0.074*	*0.101*	*0.099*	*0.094*	*0.105*	*0.093*	***0.083***

Compiled from DoT Form 41. All figures are 1992 dollars.

Although low labour cost is extremely important for airlines, non-unionised operation may not be the only way to achieve low cost structure. Southwest airlines, for example, is fully unionised and pays competitive salaries as the table above shows. It has achieved low cost-structure through high aircraft utilisation that cuts down the size of the fleet and utilises staff better.

The intrastate carriers were at a cost disadvantage (0.072) compared to some of the start-up carriers (0.062), that can be observed in Table 6-10, although Southwest Airlines was the exception. The higher costs indicate two things, first, that the Californian intrastate carriers and Air Florida had not had as much incentive to keep costs down as Southwest had under regulation, and secondly that they attempted to imitate the incumbents as they gained interstate route rights instead of developing a defensible niche in the market.

The average costs according to year show some decline from 1980 until 1983, but then increase until 1985. In 1986 the fuel costs declined dramatically and costs per

available seat kilometre drop. In this year, however, many carriers failed or were absorbed by larger incumbents leading to higher debt structure and route inefficiencies, that caused an increase in costs again. The general conclusion that can be read from the table is that most of the new-entrants were able to reduce their costs over the years they operated.

6.5.5 Debt Structure

Corporations have two basic ways to raise capital, through equity or debt. These two methods differ greatly in terms of the effect on financial performance. Chow reported that poorly performing airlines in terms of earnings per share (EPS) tended to issue fixed-cost instruments, long-term debt and preferred stock.[236] This financial structure led, according to the authors, to reduced ability of such carriers to adapt to variability in earnings before interest and taxes (EBIT). It is suggested that one of the reasons for utilising such financing schemes was to utilise interest deductions to shield profits. Chow mentions that the issuance of equity may indicate to the market that future earnings may not cover increased debt interest.[237] Thus, airlines have to adjust to their environment in ways that may limit their future options or increase leverage causing less flexibility in an adverse environment.

The debt to equity ratio for new-entrants is usually very poor. Affecting their profitability seriously. Airlines in general have high debt structure although new-entrants as a segment is higher than the average for all airlines.[238] If the last year reported in the table in Appendix-D is examined for each new-entrant, one can see that only three new-entrants Southwest, PSA and Midwest Express have positive equity compared to long-term debt. If individual years are considered it is apparent that three carriers have fared better than others in this regard, namely Southwest, Braniff II and Midway. Southwest stands out having had positive equity throughout the deregulation years.

The poor debt to equity ratio indicates that new-entrants are highly sensitive to fluctuations of the economy, especially interest rates. Furthermore, it indicates that

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[236]Preferred stock has claims and rights before common stock but behind bonds. Preferred stock is similar to bonds in some ways but different in the way that the company can decide not to pay dividend in years of negative earnings unlike bonds whose failure to pay interest will foreclose the debendure. Bonds can be of a secured and unsecured nature, meaning that a secured bond will be secured against some specific assets of the company, while the unsecured one is not secured against any specific assets but against assets not already pledged. Thus, unsecured bonds are used by either financially very strong companies or financially weak companies. In the latter case the company wants to preserve their remaining assets, if any, against pledging for future use if necessary. Long-term bond issues call for long-term relationship between the borrower and the lender that is described in the 'indenture' that is a highly detailed document of relevant information. Identure for stock-offerings is however much simpler in nature. Common stock carries with it full voting rights but claims to assets behind, bond holders and preferred stockholders that do not have voting rights.

[237]Chow, Garland, Gritta, Richard D. and Hockstein, Ronald, Airline Financing Policies in a Deregulated Environment, Transportation Journal, Spring 1988, pp. 40-42

[238]For a good overview of this high debt of the airline industry see: Op. cit. (Financial Condition of the Airline Industry).

financing through equity offerings is a problem for new-entrants due to their poor profitability and track record.

People Express financed most of its debt with public debt securities that were typically 10 year certificates with no principal payments for the first five years. This led to low repayments compared to the amount of debt or $1.5 million in 1986 on $500 million outstanding.[239] This strategy deferred debt payments to later years in the hope that the restructuring of the airline would better enable it to service that large amount of debt. It is apparent that People Express had fully extended its financial abilities in terms of public debt securities and seriously severed its relations with the banks after the Frontier acquisition, thus, hindering the tapping of financial resources after the large 1986 loss.

New-entrants are usually heavily in debt, making them less flexible in adverse economic environment and especially vulnerable to interest rate changes. Their access to equity capital has been surprisingly successful in view of their constant failures. This, nevertheless, has had its impact as recent start-ups have less start-up capital and often utilise alternative methods like employee financing.

6.6 Operations

6.6.1 Route Structure

New-entrant's route structure is different depending on the new-entrant's origin. Charter-based new-entrants tend to operate long-haul international routes. While regional based new-entrants operate very short-haul feeder routes. Start-up and intrastate new-entrants fall into the short to medium haul category. That category seems to be the one category that works best as into that category fall the new-entrants that are still operating, as well as the *hyper* growth new-entrants. Stage-length, however, tells only part of the story in terms of the route structure. In fact, there are five basic route structures that new-entrant carriers could adopt under Deregulation. The first structure is 'short-haul to and from a hub', used by a hub carrier like America West in Phoenix or a feeder carrier like Air Wisconsin at Chicago's O'Hare. The second structure is 'short-haul point to point', that characterises the most successful new-entrant Southwest and Morris Air that was acquired by Southwest in 1994. The third structure is 'medium-haul to and from a hub to small to medium sized cities', that characterised People Express, Midwest Express and Midway. The fourth structure is 'long-haul international destinations', which was mainly the domain of the former sublemental carriers, Capitol, World, Tower and American Trans Air. The fifth structure is 'long-haul domestic', which was operated by MGM Grand Air, that flew between New York and Los Angeles offering premium service.

The selected route structure is one of the basic features of the new-entrant's strategy and will be discussed as such in Chapter 7.

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[230] People Express: Time for Caution, Airline Business, July, 1986. p. 23.

Table 6-11 Average Stage Length in Miles

Airline	*'79*	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*'92*
Short-haul														
Mid Pacific								126	127					
New York A.		214	287	333	300	321	379	387						
Air California	249	289	329	341	340	350	371	411	444					
Muse Air			241	296	362	381	389							
PSA	299	319	335	349	351	360	361	362	367	363				
Air Wiscons.					110	105	127	123	128	na	na	158	161	
Aspen	145	147	153	137	na	na	na	156	152	165	189	186	231	
Empire	179	149	150	163	163	169	172	187						
Florida Exp.						381	400	397	392	428	425			
Presidential							na	498	397					
Horizon Air						160	165	156	151	146	145	148	154	160
Southwest	265	276	278	297	303	321	333	354	368	380	375	376	374	378
Medium-haul														
Braniff II						734	na	1033	963	806	704			
America W.					544	456	399	402	442	458	480	544	596	629
Midwest Exp						636	606	531	569	551	570	629	659	699
Midway	310	347	487	442	448	489	501	598	620	614	662	636	673	
Air Atlanta						555	597	526						
People Expr.			396	538	457	531	617	630						
Air Florida	324	286	410	428	435	582	1080							
Sunworld					532	492	458	422	375	821				
Long-haul														
Jet America				1735	1428	1358	1176	887	830					
MGM Grand									2475	2475	2471	2475	2475	2475
Arrow Airw.					1303	1353	1219	1190	1173	1033	1478	1606	1416	
Capitol Air		3173	2262	1959	1384	1,611								
Tower					2829	2889	2829	3438	3664	3670	3654	3473	3154	2810
World		1756	1519	1512	1938	1943	1828	1606						

Source: Air Carrier Traffic Statistics, RSPA National Transportation Systems Center, Cambridge, MA.

6.6.2 Fleet Structure

Fuel efficient, small, two pilot aircraft characterise the fleet of most new-entrants with the exception of the regional based new-entrants that have operated a mixed fleet of turboprop and jet aircraft. Another characteristic has been to keep the fleet homogenous by operating only one type of aircraft. Southwest has been able to keep this rule, while People Express operated both B727's and B737's and added B747's when London was added to its route system.

The Boeing 737 has been the most popular aircraft and the fleets of People Express, America West, Southwest and Morris Air used it. Maintenance costs are lower for two engine aircraft compared to three engine aircraft like Boeing 727. Furthermore, seating configuration in smaller two engine jets allows it to be operated with two flight attendants if seating is below 100. This is what Midwest Express and America West have utilised as a cost cutting measure with its F-28's.

The other reason for using the two engine aircraft is the lower fuel consumption. America West estimated in 1989 that it was actually 22 percent more fuel efficient than the average consumption of other carriers or 60 ASM per gallon compared with industry average of 47 ASM per gallon.

The aircraft operated is a major factor in a new-entrant's low cost structure. What is more new-entrants tend to enter the market when aircraft are readily available at reasonable leasing rates.

6.7 Information Systems

6.7.1 Information- and Communication Systems

The internal information and communication system brings together information in the company, the problems it faces and challenges from the outside. The right processing and channelling of this information to the relevant sections of the company provides for effective decision making, given that the information is relevant, timely and accurate. The model in Figure 1-4 cites the information function as the centre for decision-making, from which the management derives its information for decision-making, whose quality either makes or brakes the company.

If information is examined it can be divided into different compartments, like computer based information and processing systems, formal paper based communication systems in the form of reports, letters and internal newsletters and finally formal and informal interpersonal communication.

In the airline industry are four basic internal computer based information systems. First, the traditional accounting system that has usually an integrated management information module build in. If not, the system provides the managers with financial status reports at fixed intervals. The second, system is the operations system that is centred around the airlines in-house CRS system. This system has current booking status of all flights operated by the airline. The in-house CRS can then funnel this information into management reports citing load-factors divided into classes, production units and yield. The last named function has actually been developed into a sub-function as a management tool to maximise yield, the so called yield management system. The third system, is the external commercial CRS system. The fourth system is that of operations, scheduling and maintenance.

Some new-entrants like Southwest and People Express circumvented commercial CRS's, but most new-entrants have been participants or at least listing their schedules. In such systems, this part does generate management reports given that the airline is a full member of the system. The in-house system is, however, usually linked to the commercial CRS meaning that the most accurate up to the minute information are stored in-house, so there is no reason to produce reports from the external system unless the internal system is highly inadequate in that respect. The problem with People Express was that the in-house CRS was highly inadequate mainly due to its inflexibility and simplicity. Thus People Express did not recognise the importance of computerised systems when founded. Taking the stand that the cost savings of maintaining a simple basic system would be more important in the long-term than developing a sophisticated in-house CRS system. The result was the companies inability to respond to changes in the environment (problem generating) that were two faceted, first the increased importance of CRS's as a marketing tool and secondly the development of sophisticated yield management system by American, that set the phase for other airlines. The result was People Express inability to respond due to financial limitations and lag caused by the time required to develop such a system.

In order to understand the importance of computerised information systems and formal communication systems over informal interpersonal communication, one

needs only to look at the increase in possible linkages between employees as the number of employees increases. This explains very effectively why large companies loose their cosy personal touch that is so often experienced by employees of smaller companies and why inefficiencies and communication break-down occurs if computerised systems and formal communication systems are not developed.

6.8 Conclusion

Senior managers at new-entrant airlines have tended to be highly experienced airline professionals. The airline experience of the founder seems to be important in order for the start-up new-entrant to gain enough funding.

The new-entrant founder's personality is important for the airline's destiny. There is a tendency for start-up airline's founders to be charismatic and autocratic. Traits that are important to get the airline off the ground but becomes a liability as the airline's size increases.

The new-entrants' chief executive officers' objectives are various. Some of the objectives have been stated in the media: revenge, to make profit, to prove that things can be done differently and to enjoy media attention.

There is a tendency for roles to be centralised at the top at new-entrant airlines. The new-entrant's founders are often chairmen, CEO's and presidents all at the same time, thus enjoying almost unchallenged power. This centralisation may be important for the organisation to begin with but becomes a liability as the airline gets larger and more complicated, because there is a tendency to forego the necessary analysis before decision making.

New-entrant airlines seem to be decentralised with highly motivated work-force. The fact is, though, that new-entrant airlines have usually centralised organisation structures. People Express was famous for its employee programs and was considered highly decentralised, but was in fact ruled by one person, its founder.

Many of the new-entrants were highly 'people oriented' in order to keep the unions away. One of the fundamental parts of keeping costs down was to be union-free and pay lower salaries for more employee efficiency than prevailed in the industry. The usual bait for attracting employees on such terms was to offer profit-sharing and stock-ownership programs. These programs were two edged sword for the new-entrants as they become a liability and disheartening for the employees when profitability drops or doesn't materialise.

Fast growth of the early successful new-entrants imposed a serious strain on their organisation structure as large portion of the organisation was composed of 'new' employees that were still gaining experience and training therefore not fully useful. Information systems that take considerable time to develop and implement, lag behind making the organisation inefficient as the infrastructure is not capable of handling the increased complexity of the airline.

New-entrant airlines have grown very fast in most cases and behave differently in that respect from most other industries. To give in to the potential for fast growth may actually be the new-entrant's greatest liability.

New-entrant's demand as represented in the passenger load-factor has been good. With the charter-based new-entrants at the top of the list and regional based new-entrants at the bottom. The load-factor is not a sufficient indicator of efficiency by itself so it is necessary to look at yield, costs and aircraft utilisation as well.

New-entrant's overall profitability has been exceedingly poor. The losses increase fast as the airline nears bankruptcy because travel agents and passengers alike start to avoid the airline. This implies that airlines in a financially poor condition are highly vulnerable to press treatment in their crisis.

New-entrants are highly leveraged, making them vulnerable to adverse conditions in the economy, especially increases in interest rates. The reason is their tendency to use fixed cost instruments instead of equity financing. The reason for this tendency is inability to raise equity capital as financial health deteriorates and the founders attempt to retain power and abstain hostile take-overs.

A new-entrant's cost structure is generally lower than that of the incumbents but the new-entrant was not able to utilise the advantage fully after the introduction of yield management systems. The main facets of the lower cost structure are lower salaries, higher employee utilisation, greater aircraft utilisation and leaner organisation structures.

Aircraft acquired by the new-entrant jet carriers have tended to be second-hand, fuel efficient, small size two pilot jets. In order to further the savings the fleets have been kept as homogenous as possible. The most popular aircraft among start-up and intrastate new-entrants is the Boeing 737.

Although most of the new-entrants have been acquired by other carriers many of the new-entrants participated in the merger 'mania' in 1986. Some of the airlines attempted to over-take other airlines but were not successful. The attempts were costly in terms of management time and money and could affect the profitability of the carrier involved. The mergers that occurred were usually not beneficial for the new-entrant involved.

The information and communication system of the new-entrant is the central function that allows effective decisions to be taken. Due to the new-entrant's fast growth this function is often lagging behind causing information and communication problems.

In the next chapter the new-entrants' competition strategy will be examined in order to examine how the new-entrants applied their resources in the marketplace. As well as to search for explanations for their failure.

7. The New-Entrants' Competition Strategy

To succeed and survive in an industry,
the firm must match the aggressiveness of its
operating and strategic behaviours to the changeability of
demands and opportunities in the market-place.

- Igor Ansoff

7.1 Introduction

The following chapter covers the strategies adopted by U.S. new-entrants in comparison to the incumbents'. Strategy has received greater interest in the past decades due to increased competition in markets, especially the deregulated ones. The reason being that companies in markets where entry is relatively easy face intense competition unless they can erect barriers to entry and outsmart their competitors with their strategic moves.

Although the chapter is primarily concerned about U.S. new-entrants it does give insights into new-entrants' strategic options within 'deregulated' Europe when and if the present political protectionism will be eliminated.

The chapter will first examine the underlying principles of strategy and then concentrate on the new-entrants' strategic options and actions, as well as the incumbents' reactions.

7.2 General Competition Strategy

7.2.1 Introduction

Strategy comes across as a relatively wide concept affecting all aspects of the business operation. In order to have a clear picture of the term's definition one needs to resort to known authority on the subject. Strategy is defined in the Collins Dictionary of Business, as:

> **...a unified set of plans and actions designed to secure the achievement of the basic objectives of a business... BUSINESS OBJECTIVES represent the goals of the organization, i.e. the economic (and social) *purposes* for which the business exists; strategy is the *means* used to attain these goals.**

Tregoe and Zimmerman define strategy as:

a framework that guides those choices that determine the nature and direction of an organisation.[240]

The definitions state, therefore, clearly that the business has to have some 'destination' before it can select the roads that lead it there. Strategy as such is the selection of the roads. The problem arises when strategy is selected without any clear destination. This is apparent for some new-entrants, as discussed in the chapter, manifested in a change in the airline's basic definition of its own being: 'who am I'. In such a case it can be alleged that the carrier has shifted from the 'goal' on which its strategy was based, to an other 'goal' that leads to a total change in the selection of 'roads'. Such shift can cause a major havoc among staff and customers resulting in a sudden increase in 'problems' facing the carrier, making it shift once again to the old ways in the hope of 'surviving'.

7.2.2 Porter's Competition Forces

Porter identified four forces that affect industry competitors and cause *rivalry* among firms, whose strength determines the potential profitability in an industry:

(i) <u>suppliers</u> - bargaining power of suppliers;
(ii) <u>potential entrants</u> - threat of new entrants;
(iii) <u>buyers</u> - bargaining power of buyers;
(iv) <u>substitutes</u> - threat of substitute products or services. [241]

The forces are of differing intensity according to industries. If we examine the airline industry one can estimate that the bargaining power of suppliers is low, hence the ability of airlines to switch suppliers easily, because suppliers do not have to provide any specifically designed products for individual airlines: an airline can easily buy a Boeing instead of an Airbus aircraft. The second item, the threat of new entrance, is a larger force in air transportation. Although the larger airlines have been successful in fighting off new-entrants in the past, more and more of the competition instruments of incumbents are being neutralised,[242] making new-entrants a greater threat than before. So the threat of entry is enhanced by favourable lawmaking and policy; a sort of government strategy to reach a goal of lower fares and more service through enhanced competition. The bargaining power of buyers is low as fares are determined by the rivalry among players rather than by the bargaining power of the buyers, as they are extremely many and not united. There is, however, an increased tendency of large corporations to bargain for volume discounts on the total travel budget with each individual carrier. Fourth, the threat of substitute products is a reality in short-haul markets where the passenger can select to drive instead of to fly.

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[240] Benjamin B. Tregoe and John W. Zimmerman, Strategic Thinking: Key to Corporate Survival, Management Review, February 1979, p. 10.

[241] Porter, Michael E., Competitive Advantage: Creating and Sustaining Superior Performance, The Free Press, New York, 1985. p. 7.

[242] The US Congress has held hearings that have resulted in regulation change concerning, CRS's, advertising for etc., in order to increase competition in an alleged 'concentrated' industry, by neutralising anti-competitive tools of the large carriers.

This is exactly what makes low fares so important in such markets and why there is often so much extra traffic generated when fares go below a certain level.

The focal point of Porter's model is the rivalry among competitors, which is usually rooted in an attempt of one or more competitors to increase market-share. This is especially so in a period of low industry growth, when company growth can only be achieved through snatching customers from the competitors.

Porter's strategy framework has been criticised by researchers for its lack of accurate portrayal of strategy performance and questionable generalisability.[243] In fact the strategy - performance relationship appears to be more complicated than indicated in Porter's work. This view is backed by the PIMS research program and pointed out in Miller's and Dess work.[244] To his credit Porter does use the term 'generic' for the basic strategy alternatives, which indicates clearly that more sophistication is necessary to design a tailor made strategy for individual situations. Therefore, one can view Porter's work as a framework for strategy analysis and selection rather than a detailed strategic tool for all imaginable situations.

7.2.3 Entry Risks and Costs

The provisions of entry in a market is one of the fundamental aspects of effective competition. However, one must distinguish between entry in terms of an extension of existing firm's operation and an entirely new firm's entrance into a market. Thus, there are three facets of entry in deregulated air transport markets, namely the entry of existing trunk carriers into new routes, the entry of existing non-scheduled, intrastate or local carriers and finally the entry of entirely new carriers into the market. The risk level is in fact in the same order, being the least for well established large carrier, moderate for a carrier extending a similar operating base, but high for a new business entity in a new market. This can be clearly observed in the risk matrix in Figure 7-1.

In addition to risk differences, there are different costs associated to entry depending on the new-entrant's relative industry position. Porter classified these costs into four groups: (i) The investment costs required to be in the new business;(ii) the additional investment required to overcome structural entry barriers; (iii) the expected cost from incumbents retaliation; balanced against (iv) the expected cash-flow from operations.[245]

It is apparent that small airlines will be at a disadvantage when entering new markets due to higher costs. The start-up costs of a new carrier entering a market will be

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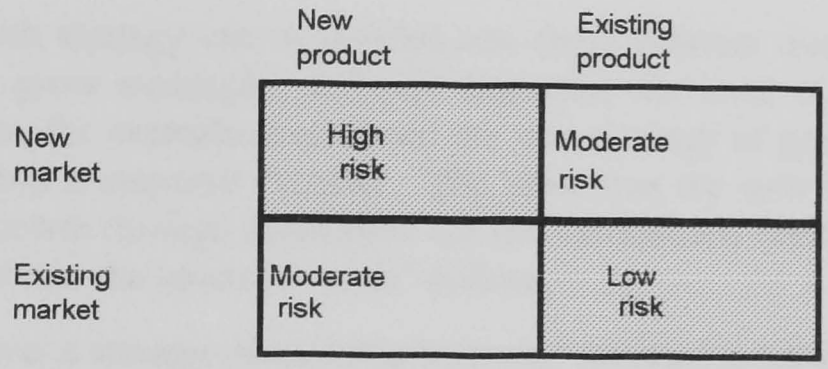
[243]See: Miller, A. and Dess, G.G., Assessing Porter's (1980) Model In Terms of Its Generalizability, Accuracy and Simplicity, Journal of Management Studies, Vol. 30,. No. 4, 1993, pp. 553-585.

[244]Op. cit. (Miller and Dess), p. 577. The PIMS(Profit Impact of Market Strategy) shows a more complicated relationship of strategy to profit than Porter's generic model. See: Robert Buzzell and Bradley T. Gale,The PIMS Principles: Linking Strategy to Performance, The Free Press, New York, 1987.

[245]Op. cit. (Porter, 1980), pp. 347-348.

greater due to the costs of overcoming 'resistance' or 'indifference' by the infrastructure authorities. Such costs are likely to be lesser for a well established large carrier starting to serve a community airport, contrasted to a new unknown carrier that may not be in business for long. Furthermore, all new companies, regardless of their founders' experience, will add to their experience, making decisions smoother as time passes. As a result, they are bound to incur costs of being at the bottom of the 'learning curve' unlike the incumbent carrier. This difference will dissipate with time, though, playing lesser role.

Figure 7-1 The Market Entry Risk Matrix[246]



Entry by new carriers is particularly viable in air transport when entry costs are low in terms of capital requirements for aircraft acquisition. This occurs when there is excess capacity, leading to aircraft being available at favourable terms, when the incumbents are financially weak and not prone to retaliate by fear of a market wide fare war and when the incumbents are exiting unprofitable markets.

7.2.4 Internal and External Growth

It is important to realise that competition intensity increases when traffic growth declines because then the airlines will have to extract growth by attracting customers from the competitors.[247] As demand increases the airlines are faced with actual lack of capacity or projected lack of capacity, that is rectified by ordering aircraft that may have long order lead time, usually counted in years. This lead time is sometimes extended during rapid growth and especially when major changes are occurring like changed noise regulation that renders a portion of the fleet obsolete. When the new aircraft are delivered the growth period may be over and the new aircraft adding unwanted capacity, while the old planes can not be sold due to lack of demand. As soon as there is excess capacity there will be increase in rivalry because of the necessity to maintain growth and to cover the high fixed costs incurred by obtaining the new aircraft. The only way to reduce excess capacity in the airline industry is by growth and aircraft retirements.

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[246] Based on Igor Ansoff's 'Product/Market Expansion Grid'.

[247] Saturation of the U.S. domestic market has definitely led to an intensification of competition and led the airlines to increase emphasis on international routes. Furthermore, the pressure on the government to provide 'deregulated' bilaterals has increased as a result, thus, leading to increased international pressure for liberal air transport policy in terms of price and capacity. It is clear that in international markets US airlines are very competitive in terms of low unit costs.

The level of traffic growth is affected by a number of factors that can be divided into two distinctive groups, namely demographic growth and individual airline's strategic growth. The former group contains economic growth leading to an increase in disposable income, increase in tourism, population increases, increase in international trade and an increase in immigration. The latter group deals with sources of growth that are in the airline's domain to influence, namely fare reductions, addition of points served, marketing agreements and frequency increase. It is important to note that growth in air transportation is limited by bottlenecks in the system: ATC congestion and airport capacity. Figure 7-2 shows this possible sources of growth for an air carrier.

A firm's growth strategy can be divided into three different directions, to: (i) grow internally; (ii) grow externally; and (iii) determine the level of acceptable growth. People Express, for example, maintained the first strategy of growing only internally until 1985, when it acquired Frontier. The same was the case with Southwest that has avoided growth through acquisition but felt strategically unable to pass Muse Air and Morris Air into the hands of 'other' airlines.

There is however a strange relationship between 'success' in terms of fast growth and 'failure' due to much success manifesting itself in too fast growth. Too fast growth will affect the company's cash-flow in such a way that it can fail, although, it is making profit according to the books. Similarly, growth that is achieved, through a merger or acquisition can seriously harm the cost-structure of an airline in good condition through the inevitable addition of debt. Furthermore, the harmonisation of two entities into a larger entity can cost in terms of deterioration in company's working atmosphere and quality of decisions due to more time spent on 'merger' tasks rather than 'strategic' tasks necessary to maintain future profitability of the more complex corporation.[248]

Aviation bankers have argued that airline management should focus on keeping their share rather than adhering to bold strategic aims of 'pursuing growth for its own sake'.[249] The argument is placed into context with the 'financial' institutions reluctance to finance poorly planned growth with no aim in itself but 'size'. With the airline business loosing billions on both sides of the Atlantic, prior to 1994 bankers were sure to be concerned. This belief has, however, ignored that growth as such is often related to factors like competitors behaviour and the necessity of businesses to grow. First, all companies that have shareholders are prone to strive for growth in order to maximise their shareholders' wealth. That is the yardstick on which the management's performance is measured by the company's 'owners', the shareholders. This is especially so if the company is large and has large number of shareholders. Growth associated with profits make it easier for the company to raise capital through 'markets' both debt and equity. One only needs to cite People

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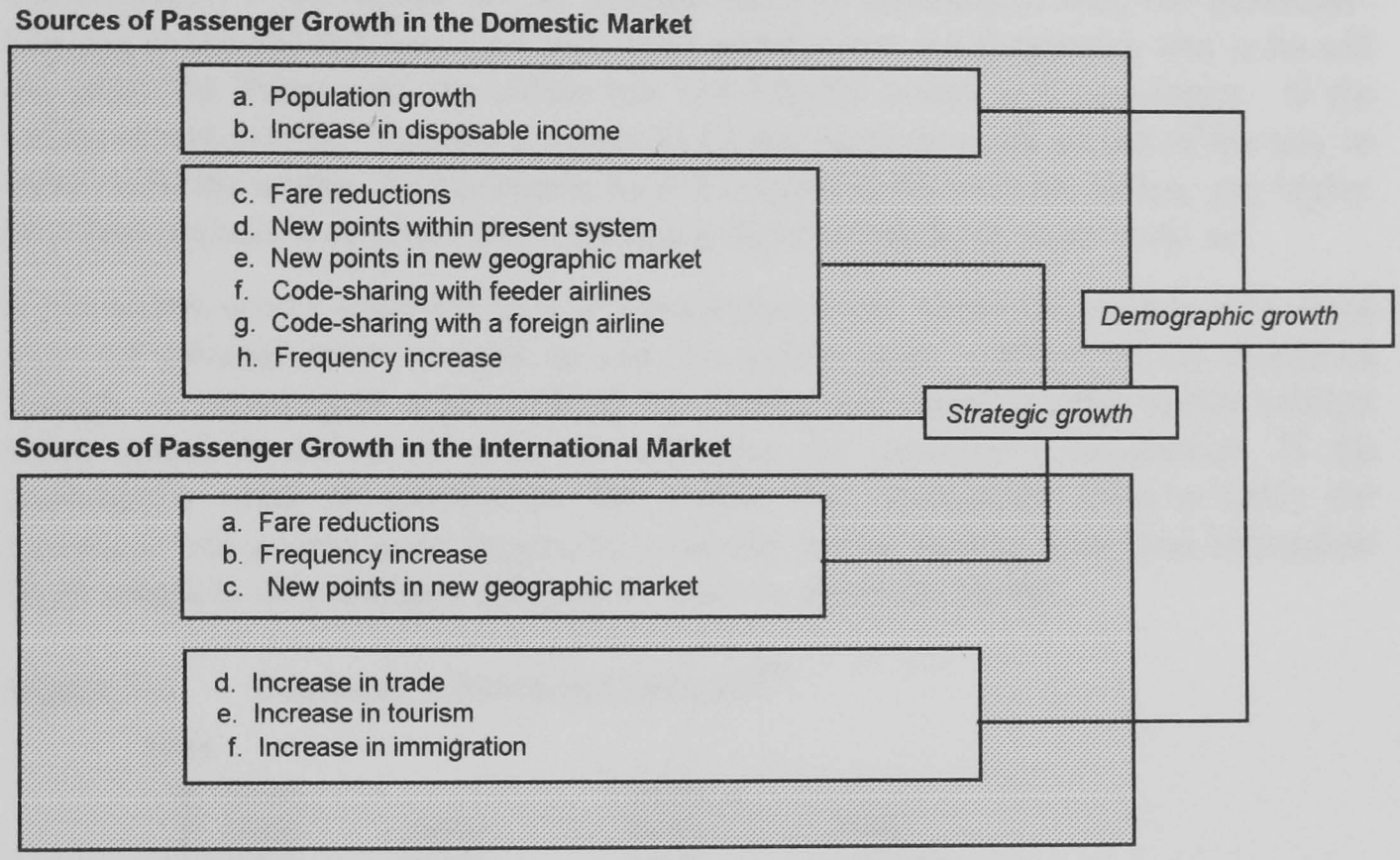
[248] Gialloreto, Louis, Strategic Airline Management: The Global War Begins, Pitman Pub., 1986. He concluded in his book (pp. 41-44) that the stress of rapid growth lead to enormous costs and structural stress of the airlines involved. He mentioned the early Pan Am's merger with National and North Central with Southern and Hughes, that brought about detrimental effects on the two carriers. Both mergers were set astray due to severe cost increases after the pilots where brought up to the aquiring carrier's pay scales.

[249] Airline Business, The Growth Virus, Airline Business: The Skies in 1994, p. 29.

Express that was praised by most analysts until shortly before its collapse, even though the signs showed that the company's infrastructure and management practices were shaking as soon as 1983, but the 'light-speed' growth and profits were what the media was interested in.

Figure 7-2 Sources of Passenger Growth for Scheduled Airlines



One must conclude that internal growth along a well planned long-term strategy, that contains the growth level to a sustainable level in terms of debt addition and cash-flow, is the most viable alternative for any business.

7.2.5 Customer Influence on Competition

Sometimes it appears in air transport markets that the customer will accept most adversities in exchange for low price at the low-end, and frequent flyer miles at the high-end. For example, why do passengers accept the indirect route through hubs to their destination? The reality is far from being so simple as to assume that passengers are indifferent about adversities at airports, inflight or for any other aspect of their journey. In fact a passenger accepting hub flights might accept it, as there is nothing else available, but as soon as he has a choice of a direct flight at a similar fare his 'consumer' vote will be for the direct flight. In order to see what role customers play in the airlines' strategy a model of 'Customer Reaction Contours'(CRC) was developed for that purpose.

The underlying framework is that airlines are offering a perishable commodity-like product which is basically the use of a seat while being transported from point A to B. In fact the product is highly standardised and viewed similarly by most buyers. As a result, price is of an outmost importance to the majority of buyers. In fact, the

meaning of the time spent by the user in the seat is of negligible importance unless the airline violates his state of indifference or expectancy, be it to the negative or the positive. Accordingly, 'Utils' can be used in order to explain the nature of the airline's product quality interaction with it's customers.

The passenger moves from the Indifference Contour (IC) towards the 'Positive Contour'(PC) if the airline scores enough units of satisfaction with the passenger. Moving to the PC will leave the passenger positive but not impressed, that is he will not press for flying with the airline but will happily accept it if convenient. If the airline scores into the 'Loyalty Contour'(LC) the passenger will go out of his way to travel with the airline. For example, he will request to fly with the airline, pay higher fare than necessary or select less convenient flight schedule, in order to do so.

If the airline scores negative units of satisfaction it will cause the passenger to show signs of dissatisfaction to have to use the airline again, without direct objections though. A travel agent might pick up this feeling and select an other airline without being asked to do so in order to maximise the customer's satisfaction. If the passenger's units of satisfaction fall within the 'Avoidance Contour'(AC) the passenger will go into great lengths to avoid the airline, he may select less convenient flight schedule or/and higher fare just in order to avoid the carrier.

Figure 7-3 Customer's Reaction Contours[250]

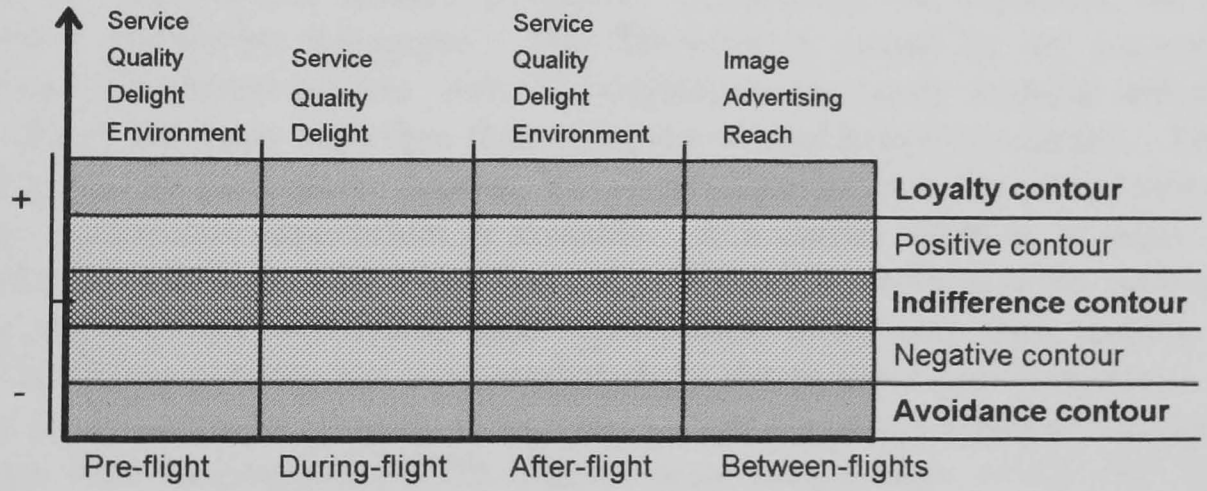


Figure 7-3, therefore, describes the interaction of any airline's product quality with its passengers. It explains how airlines lose market-share from below, that is if a new-entrant with higher quality and better service features enters a market with prevailing low quality by offering higher relative quality. Such airline will attract the passengers that have entered the AC and some of the passengers that are in the NC along with the innovators[251] in other contours. By the same token it can be risky to enter a market with competitors that have high proportion of passengers in the PC or the LC

[250] It is asumed that all passengers enter at 0 or in the indifference contour or if with previous experience of the airline in the expectancy contour, which two are in fact the same in the model. However, a passenger with prior experience of the airline can enter in the negative area or the positive area of the model and stay there or shift towards indifference, increased negativity or towards positiveness.

[251] Innovators are those that have to try everything new, regardless of their happiness with present product.

contours. Passengers of such airlines will only change airlines if the new-entrant offers something absolutely unique in the market and pushes the passenger into the positive or the loyalty contour immediately. In fact, a passenger will not accept being worse off, given, that he strives for the maximisation of his utils.

A loyal or positive passenger will only remain as such until the airline fails to deliver what he expects or when something better is offered by a competitor. The fact is that a passenger who is inclined to maximise his utils will not change carrier, unless he will gain more utils than he will lose by such a move. FFP distort this relationship, making switching costs higher. Thus, a customer may only leave his FFP if his loss of miles will be reclaimed partially or fully at the new carrier's FFP. [252]

Given what has been said above, one must recognise that airlines can never fulfil all passenger's needs to their satisfaction, so there are always going to be customers in all the contours. The issue for a new-entrant is, therefore, how large a portion of the incumbent's total number of passengers is filling each contour on the average. If large portion is filling the negative and avoidance contours, the incumbent is a weak competitor, if not, entrance may not be viable.

7.2.6 Competitors' Analogy

In some industries and markets there is constant in-fighting. In view of the frequent fare-wars in air transport markets it is important to analyse their possible causes in addition to those factors already mentioned. Henderson has explained this by a competitive equilibrium disruption. This disruption is caused by the competitive relations of the market players. First, if competitors are nearly identical and make their living in the same way, then their competitive equilibrium is unstable. This is especially true for the majors. Second, if a single major factor is the critical factor,[253] then the competitive equilibrium is unstable. If a carrier achieves a major cost differentiation and enters with a low fare and achieves market-share at the expense of existing carriers, they will defend their market-share at all cost, thus, causing fare war. The airline industry has been market-share driven since pre-deregulation era, because the airlines were guaranteed a certain rate of return as a result of the General Passenger Fare Investigation(GPFI). Hence, large market-share would spell larger profits given reasonable cost-control. The same attitude prevailed after deregulation but for different reasons; the airlines soon found out that fast expansion was not viable in light of high costs associated with initiating new routes, something Braniff created an example of. It was, however, important to gain market-share in terms of gaining 'market power' and economies of scope, density and information. This is not to say that low market-share businesses can not survive in an industry, as it is generally accepted that low market-share businesses need to find a niche and gain large market-share within that niche. The problem of protecting that niche has, however, been clearly apparent in the air transport industry due to the commodity nature of the product. The buyer's choice of airline will usually be first and foremost

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[252] Therefore, it is important to offer mileage exchange in order to break a passenger loyalty with a competitor.

[253] A critical factor could be market-share, profitability, growth, etc.

guided by fare, service and quality.[254] Thus, it has been fairly easy for the incumbent to enter a market defined as a niche by a new-entrant and destroy the niche as such.[255] Third, if there are many critical factors, then it is possible for each competitor to have some advantage and be differentially attractive to some customers. The greater the number of critical factors that provide advantage, the greater the number of competitors that can coexist. Each competitor has his competitive segment defined by the preference for the factor trade-offs that he offers. Under this structure many differentiating opportunities exist and if customers value these differences differently then the firms can coexist through niching. This coexistence lasts only as long as both carriers do not cross into each others niche. Fourth, the fewer the number of competitive variables that are critical, the fewer the number of competitors. Fifth, a ratio of 2 to 1 in market-share between any two competitors seems to be the equilibrium point at which it is neither practical nor advantageous for either competitor to increase or decrease market share.[256]

It must be mentioned as a note to these findings of Henderson, that market-share is not a viable strategy in itself. To improve service, reduce costs and improve quality in order to gain competitive advantage that leads to larger market-share is, however, a viable strategy.

7.3 Competition Strategy in Air Transport Markets

Now that strategy has been covered in general terms, the definition of strategy leaves us with a question in mind, as to what a new-entrant's objective could be in a deregulated market? The Congress had an objective in this regard, by assuming that new-entrants would increase competition for the benefit of the consumer, in terms of lower prices and perhaps increased service. The new-entrant, on the other hand, has a more grounded objective, to: ' make a profit', 'provide employment', 'maximise the airline's size' or prove that a new-entrant airline 'can survive'.

The new-entrant airlines have made profit, some of them have actually benefited investors immensely, if they sold their shares before the new-entrant's decline and failure. Some of the new-entrant airlines have grown very fast, indicating that their objective may have been rapid growth in order to reach large size. Perhaps in the believe that size was actually the only security for the carrier's survival. Whether this is true or not will be examined later in the chapter. Many of the new-entrants have been formed by former airline executives and staff possessing highly specialised

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[254]It is an over generalisation that the business market is entirely price in-elastic. This market can in fact be segmented into the size of businesses the business passenger represents and the smaller segment is likely to be highly elastic, while large corporations use their bargaining power to gain volume discounts off air travel, either directly or through their travel agent.

[255]Presidential identified a gap in the market out of Washington, but shortly after initiation of services both New York Air and United entered the market, thus, eliminating any advantage Presidential may have had.

[256]Henderson is the Chairman of Boston Consulting Group and the list was derived from number of articles he has written. The list was composed by and appeared in Kotler,1980, p. 247 - 248.

knowledge. Thus, new-entrants may have been formed to provide employment,[257] but that as an objective can not stand on its own unless there is unlimited source of capital.[258] As a result, the profit motive has to enter the equation.

Some carriers are actually established as 'rich' man's hobby, meaning that it can loose money constantly without going bankrupt. An example, would be MGM Grand Air that is owned by a billionaire. An other motive is for retiring airline executives to have something to do in their retirement, that is they do not want to retire from the airline business. An example of such a carrier is USAfrica that was trying to carve out a niche on the U.S. - South Africa route. The airline's executives were mostly retired major airline's executives or businessmen.[259] The last item of 'proving that it can survive' may explain why new-entrants are constantly being formed against all odds. The challenge of proving that it can be done seems to attract an endless row of risk-takers willing to prove a point.

Due to the history of new-entrant airlines it must be concluded that new airlines(past 1986) can only be established with the grave objective of surviving, other objectives can only be secondary to that. Hence, each of the new-entrants selects a strategy to reach its goal of survival. Of course, this objective is an umbrella rather than an actual stated objective of any new-entrant. As a result, past 1986 new-entrants' objectives may be something like 'carving out a defensible niche' or 'keep a low profile' in order to keep the incumbent indifferent. The problem with these goals, however, is that eventually the new-entrant will grow out of the limited niche. Furthermore, a carrier striving to keep the incumbent happy will eventually join the incumbent, if not peacefully then by force.[260] The early new-entrants had different goals, like size maximisation that characterised People Express and America West or profit maximisation that has been the strategic trait of Southwest.[261]

The selection of an overall strategy focuses the sub-strategies in conjunction with the competition environment. In order to select the strategic alternatives the airlines will produce an intuitive or systematic opportunity analysis: strength, weaknesses, opportunities and threats analysis (SWOT). Figure 7-4 below shows two sets of hypothetical new-entrant strategies one of a very low cost airline and an other of a high-cost premium service carrier. The former airline will exploit its cost advantage by offering low fares. In order to do so it will not participate in a CRS but develop a in-house telephone booking system linked to an internal simplified CRS; it will offer on-board ticketing in order to save on ticket counters and staff; it will unbundle

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[257] This is the case for some past 1990 new-entrants, with KIWI being formed by ex-Eastern pilots that put up most of the start-up capital, and Reno being formed by ex-Midway staff. Other carriers are being formed by ex-Midway staff, ex-Frontier staff and so on.

[258] One may allege that the fundamental objective of Air France and similar government owned giants was to provide employment, to which all other goals were secondary, including profitability, efficiency, service, quality and so on.

[259] The CEO passed away in 1994, being replaced by the son of a retired airline executive that had a streak at USAfrica, but was replaced by a retired VP from American.

[260] Examples include most of the independent feeder carriers and Empire, Air Wisconsin, etc.

[261] The stated goal of Southwest is to get people out of their cars on short-haul routes.

services in order to charge for snacks and drinks on board. The image will range widely from being poor for fast growing carriers to being strong for small niche carriers. Branding will be weak for the size maximisation carrier as it will emphasise fares in its advertising and save on costs associated with image building and brand creation. Service features will be as few as possible in order to save and quality may be lacking for the same reason. The carrier will strive for market-share maximisation, either in terms of overall market-share, city-pair market-share, airport market-share or some combination of those. The size maximisation carrier will sometimes enter niche markets to begin with but as the size gets larger and markets selected under the initial strategy run out, other segments will be added usually until most segments have been added.

The other example is of an high cost carrier, offering premium service at business class fares(Regent, Air Atlanta, MGM Grand Air, etc.). Such carrier will participate in a commercial CRS system due to the smallness of the segment, requiring as large TA's catchment area as possible. In addition, the CRS booking fee will be relatively low percentage of the total fare. The image will be emphasised strongly in order to create favourable attitude of the potential customer: lavish decor, many service features, superb service and dependability. Branding will be emphasised in conjunction with image by building up named classes, but usually the airline's name becomes a brand in itself. Market-share is not an aim in itself nor emphasised as the market segment is very small. To reach break-even load factor is more important due to the high-costs involved with providing this sort of service. Quality is of a major concern as well as the service features. The service features are usually far more sophisticated than that of the incumbent carriers.

Figure 7-4 Strategy Dimensions

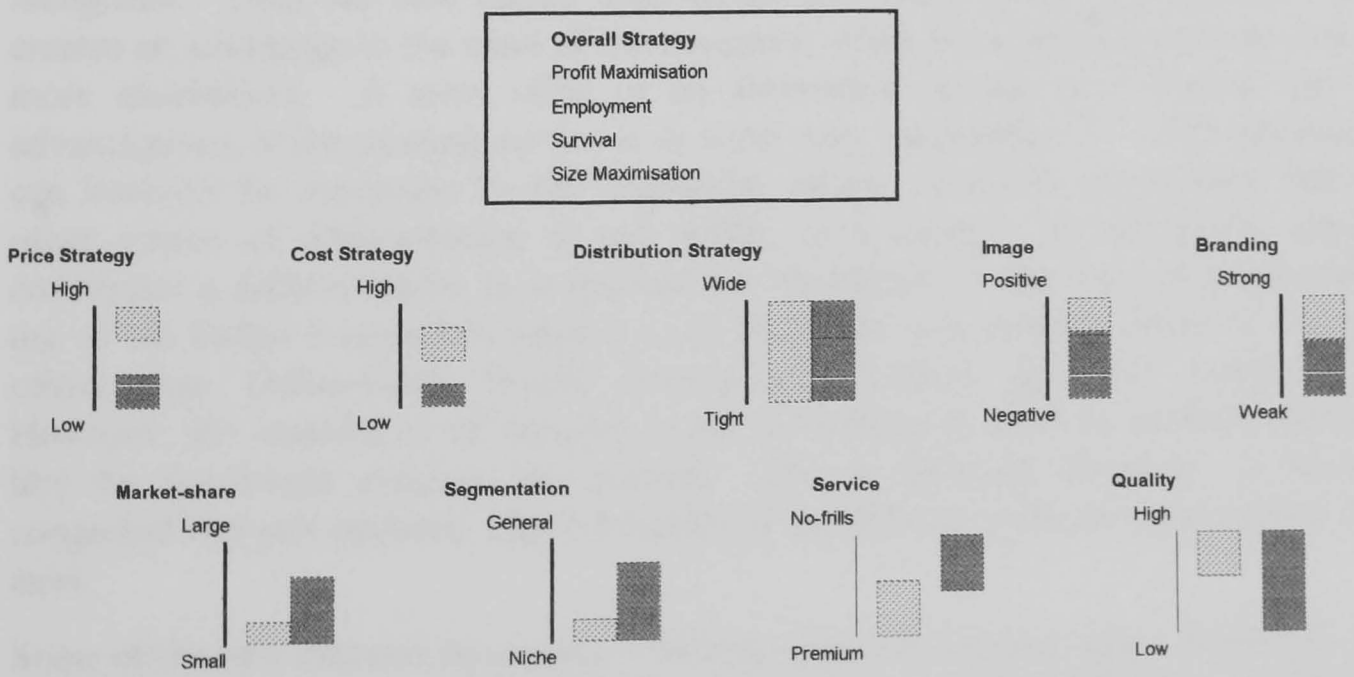

Figure 7-4, then gives an indication of what planning is involved in strategy selection to reach the overall objective of the airline. In order to cast further light on the interrelationship of all the factors involved, a discussion will follow on new-entrants' and incumbents' competition strategy.

7.4 New-entrants' Strategies

New-entry is the fundamental prerequisite of intense competition in a market. However, the sophistication of the tools that firms can develop in order to outsmart the competitor distorts the traditional economic models of competition and has made the quantification of competitive reactions more or less in vain. This has been quite clear in the deregulated air transport industry, with the advent of yield management, CRS bias, frequent flyer programs and the hub and spoke route systems, that had not been projected by economists prior to deregulation.

New-entrant's entry strategies, at large, in the deregulated air transport market were usually a combination of the following: (i) low cost structure achieved through non-unionised staff with airline experience and low wage scales; (ii) high operating efficiency attained through fast turnaround at gates and efficient aircraft (B737,B727); (iii) highly motivated work-force, whose motivation is enhanced by stock participation programmes and flexible job tasks (cross-utilisation); (iv) market strategy geared to low fares by unbundling services, offering simple fare structure (peak, off-peak), non-participation in commercial CRS's, offering high frequency, offering very low entry fares for promotion purposes (free coverage), non-interlining, service differentiation (no-frills/extra frills), quality differentiation (high quality), niche identification, long haul/short haul and route differentiation (direct services/hub and spoke).

Meyer and Oster note that a new carrier has to be concerned with differentiation rather than with capacity in a market served. This is due to the fact that the 'novelty' causes a liability to a carrier trying to create awareness in a market. Thus if the customer has a choice among two identical alternatives, he will choose the one he recognises. Thus, the new carrier must create an 'unique selling proposition' that creates an advantage in the mind of the customer, when he is choosing among two or more alternatives. A mere offer of an alternative service in a market can be advantageous, if the existing service is in some way 'unpopular'.[262] This advantage can however be overcome by the unpopular carrier, so if the new-entrant has no other source of differentiation it will suffer, as a result. An alternative airport constitutes a differentiation as is pointed out by Meyer, in the case of Southwest's use of the Dallas's secondary airport Love Field that was actually closer to the city centre than Dallas-Forth Worth International Airport and less congested.[263] However, the importance of capacity is not secondary in small to medium markets like the Southwest example has proved. This is different, however, in heavily congested city pair markets, where demand for any service in the city pair market will exist.

Some of the new-entrants have been wobbling with their base strategy. Braniff II, for example, started out as a full service business carrier charging full fare. It became apparent within a year that that strategy did not work, thus, a 180 degree turn was

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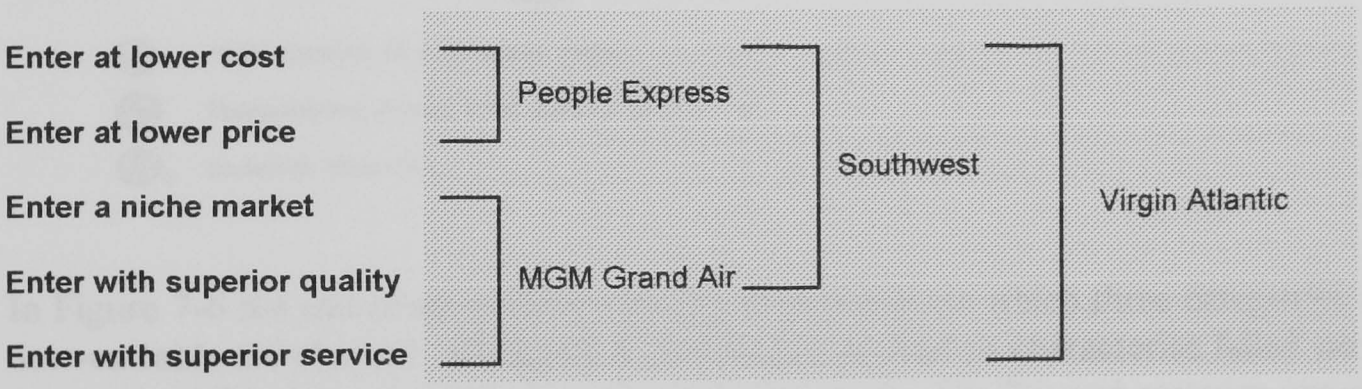
[262] This was the case with Braniff at its main base causing little loyalty of the community regardless of a long period of sevice, creating a gap for other carriers to fill.

[263] Op. cit.(Meyer), p. 42

taken, turning the carrier into a low-fare, low-service carrier. Such moves are bound to alienate both the passengers and the distribution system. A similar strategy U-turn was attempted by Midway Airlines that wanted to reach the business market by establishing a separate carrier called Midway Metrolink but suffered a $22 million loss in 1984, as a result. Metrolink was abandoned but with the acquisition of Air Florida's assets the low-cost, low-fare Midway Express appeared from the company's design board. That carrier did not provide profitability so the carrier abandoned this differentiation strategy and returned to the single name Midway and full-coach service.

If we compare Porter's theories on strategy with the new-entrants' situation we find that they do seem to apply in general terms. Porter pointed out, in his work on competitive strategy, that there are three basic strategic direction possibilities, which he calls 'Generic Strategies': *overall cost leadership*, *differentiation* and *focus*. The *cost leadership* strategy is based on the exploitation of scale advantages, cost control, cost reductions from experience and cost minimisation. The effect of this strategy is the ability of the cost-leader to extract higher than average yields in a highly competitive market, given that 'spiteful' behaviour is not prevailing in the market place.

Figure 7-5 Five Basic Entry Strategies



Differentiation, on the other hand, gives the airline an opportunity to exploit some unique trait of its product offering or location. Finally, *focus* strategy is when the airline targets a specific market-, service- or geographic segment. It is interesting to note that the most successful carrier in terms of profitability, Southwest Airlines (SW), has exploited all of this strategy alternatives in combination. First, it used a secondary airport, Dallas Love Field - differentiation; second, it achieved the lowest cost structure in the market - cost leadership; third, it has focused on the 'sunbelt', on direct flights and short-haul - focus.[264] This unique ability of SW can be observed in Figure 7-5 in comparison to the successful European airline Virgin Atlantic and other less successful U.S. new-entrant airlines.

Examining Figure 7-5 one could conclude that as more basic entry features are combined the greater the success of an airline, as the two airlines that can be termed successful have both combined, four or more basic entry strategies. The combination of high quality, high capacity but low service on short-haul routes where service

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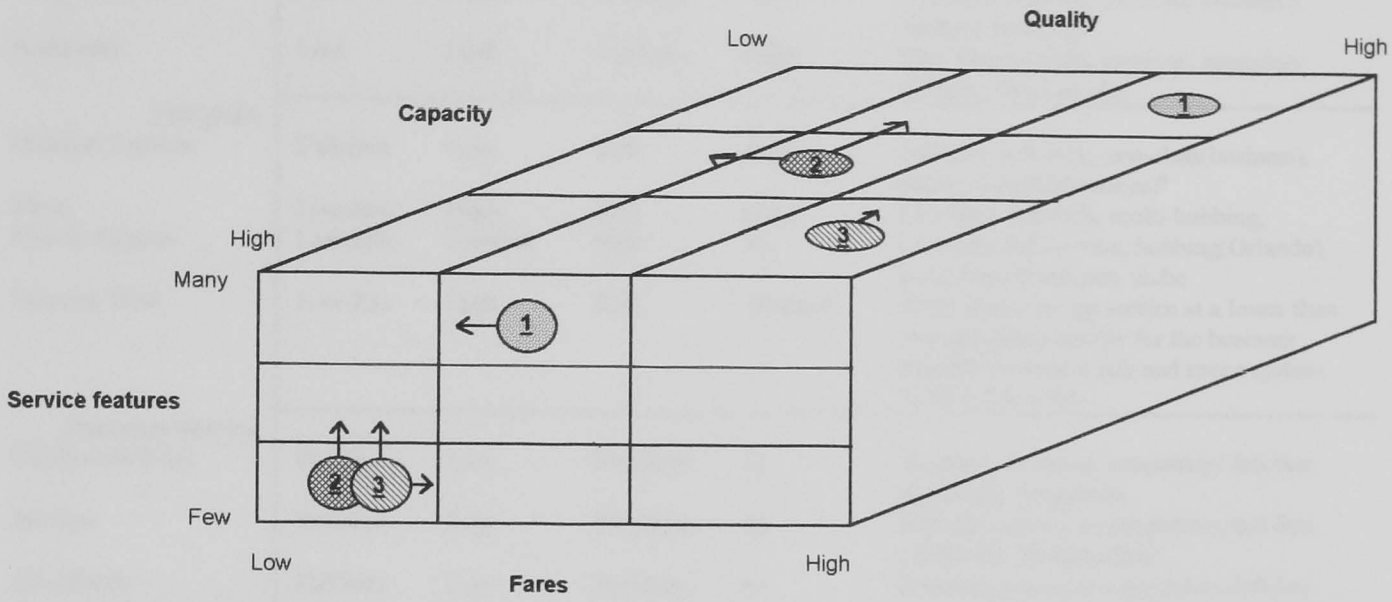
[264]Op. cit.(Porter, 1980), pp. 35-40.

features are not a major advantage in the customer's mind has worked well for Southwest, while Virgin adds superior service with a 'fun' element. Virgin does not imitate the U.S. 'premium' service carriers, but excels at traditional service features usually found at the incumbents, with few 'extras'. One must also recognise that Virgin, unlike Southwest is a long-haul carrier, giving added weight to service features.

Figure 7-6 Entry Strategies of New-entrants



1 MGM Grand Air, Air 1, Air Atlanta, UltrAir

2 People Express, America West, Muse Air, for etc.

3 Southwest, Morris Air

In Figure 7-6 we can observe three strategy dimensions on which three categories of new-entrants are charted. Category 1 and 2 have proved to characterise failed new-entrants, while category 3 has proved successful so far. Quality and superior service in addition to low cost structure and low fares seems to be an important strategic advantage for new-entrants, as it is harder for the large incumbents to match the former two in conjunction with the latter two. A smaller carrier can introduce new services much quicker and better than large carriers due to the inherent flexibility of a small organisation.[265]

Table 7-1 shows in more detail entry strategies adopted by the new-entrants under Deregulation. It is convenient to segregate the carriers according to service features as presented in the table. It shows well the main strategy directions adopted by the airlines.

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[265]Richard Branson has made uniqueness and quality Virgin Atlantic Airway's main priority. That airline is in fact the only new-entrant in the world combining all the features successfully. His philosophy comes clearly accross in the following quotation, where he compares his airline with a restaurant: 'If you run an independent restaurant, the way to beat McDonalds is to make sure all the little details are right - to make it unique and so special and friendly that people will go out of their way to go there.' Independent, Virgin Atlantic - Branson's Favourite Baby Grows Up, November 25, 1991, p. 26.

The no-frills service strategy has been widely adopted by new-entrants in order to maintain their lower cost structure. The strategy has worked well for Southwest in conjunction with other factors already mentioned.

Table 7-1 New-entrants' Strategies

Airline	*Fares*	*Capacity*	*Service*	*Quality* [266]	*Concept*
No-frills					
People Express	Low	High	No-frills	Low	Low-fare, no-frills, low-cost, secondary markets, hubbing.
Southwest	Low	High	No-frills	High	Low-fare, no-frills, low-cost, secondary markets, direct service.
Full-frills					
Midwest Express	Full-fare	Low	Full	High	Full-fare, full-frills, one-class(business), direct, niche(Milwaukee)[a]
Muse	Low-fare	High	Full	High	Low-fare, full-frills, multi-hubbing,
Florida Express	Low-fare	Medium	Full	na	Low-fare, full-service, hubbing(Orlando), incumbent avoidance, niche
America West	Low-fare	High	Full	Medium	Better than average service at a lower than average fare primarily for the business traveller through a hub and spoke system. ATW 6/84, p. 83.
Premium Service					
MGM-Grand Air	Full-fare	Low	Premium	na	Premium service at competitors full-fare coach rate. Long-haul.
Air One	Full-fare	Low	Premium	na	Premium service at competitors full-fare coach rate. Medium-haul.
Air Atlanta	Full-fare	Low	Premium	na	Premium service at competitors full-fare coach rate. Medium-haul.

[a] The company is a subsidiary of Kimberly-Clark, and has about 5% of its passengers generated from that establishment. One of the airline's best routes is a company route i.e. between two company plants.

The full-frills strategy has been adopted in order to gain access to the two main market segments leisure and business at once, like most of the incumbents. That strategy as such has not secured any better survival chances for the new-entrants, although, America West has been around for longer period than most new-entrants. The so called 'superior service airline', including Air One, Air Atlanta and MGM Grand Air, offered superior first class service at full economy or business class prices. The problem with this type of operations was the lack of frequency. This inference leads to a dilemma, as they may not have been able to reach break-even load factors at higher frequency due to lack of demand as the market segment is very tight. On the other hand, little frequency reduces the attractiveness of the service due to the importance it plays for the market segment. Can this strategy work then? The history tells us that it does not. Nevertheless, there are new carriers taking it up every once in a while, the last one was UltrAir that went bankrupt soon after initiation.

7.4.1 Sequenced Entry

In order to reduce risk a new-entrant airline may select an indirect route to achieve its goal. This is called 'sequenced entry', where the airline enters one market type or

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[266] Based on consumer complaints records. It is asumed that airlines with consumer complaints less than 1 per 100.000 passengers are 'High' quality, while those having 1.1 to 5 to be 'Medium' quality and those having 5.1 and greater to be 'Low quality'. Note that quality does not indicate the level of service offered as Southwest is a high quality low service carrier!

operation and then adds an other. There are different types of sequenced entry in air transport: (i) Low density routes to high density routes; (ii) extending one's geographic market area; (iii) entry from the leisure market into the business market; (iv) entry into international operations; (v) entry into another operation type (charter to scheduled, for etc.); and (vi) equipment upgrade (turbo-prop to jet operations).

Careful selection of entry level strategy can reduce initial risk and reduce entry barriers. People's Express sequenced entry strategy played a major role in its fast growth. First it entered short-haul underserved markets, then it started long-haul and with the acquisition of Frontier it entered a new geographical market instantly as well as leaving the business segment. In addition to this the carrier entered international operations to London.

Table 7-2 Sequenced Entry Strategies

Sequenced entry strategy	*Risk level*	*Entry barriers*	*Example*
Low density route to high density route	High	Availability of slots and terminal facilities, development of market presence, retaliation of incumbents.	People Express
Entry from one geographical market to another	Moderate	High entry costs, availability of slots and terminal facilities, development of market presence, retaliation of incumbents, takes time during which the incumbents can recuperate.	People Express
Leisure to business market	High	High entry cost; brand conflict; retaliation of incumbents.	People Express, Virgin Atlantic, New York Air
Domestic to international	Low	Culture conflicts, route licences, capacity and fare limitations.	People Express
Charter to scheduled	Moderate	High entry costs, availability of slots and terminal facilities.	Tower, World, MGM Grand Air
Propeller to jet	Moderate	Availability of capital, increased costs, increased route distances, incumbents retaliation.	Air Wisconsin, Empire
Short-haul to long-haul	Moderate	Increased costs due to equipment upgrades, retaliation of incumbents.	People Express

It is important to note that at every step of the way the carrier attracted retaliation on behalf of the incumbents, and as more entry segments were added the competition rivalry intensified. If the carrier builds a solid foundation, it can withstand the competition better, like Southwest. People Express grew too fast to secure its foundation, failing to benefit from sequenced entry strategy.

Table 7-2 shows the risk level associated with each of the entry possibilities in a deregulated market and what airlines have adopted the named strategy. The risk level is based on the extension of the risk matrix presented in Figure 7-1. The highest risk is associated with entering large markets where large competitors dominate, a market were the new-entrant will be a tiny player, often under the heal of the incumbent due to shortages of slots and airport facilities. The move from purely low-fare, no-frills service to offering business class is also regarded as high risk due to the costs involved and the possible brand conflict. Such brand conflict occurs as the no-frills carriers gain a strong image perpetuating low service and sometimes poor quality, something which most business passengers want to avoid. Furthermore, as the airline starts to advertise heavily to gather for the new business segment, the loyal low-end passengers may feel excluded or even not wanted any more as customers.

An example of a low risk strategy is adding international operations. This is due to the fact that most international routes are governed by bilaterals that reduces the risk as only few airlines are likely to be competing on the international route. Other entry strategies are classified as moderately risky due to their tendency to involve entry into new territory. The addition of jet equipment to all turboprop operation is considerable risk due to the required changes in maintenance, operations, scheduling and costs. Charter carrier entering scheduled operations must establish its distribution, adapt to the inflexibility of scheduled operations compared to charter operations and harmonise the utilisation of its fleet for both charter and scheduled. This last item can be troublesome as charter requirements (long-haul) of flight equipment and that of domestic scheduled operations (short- to medium-haul) can differ dramatically.

7.5 Incumbent's Reaction Strategies

In any competitive market there is going to be competition between the small and large players in the market. The larger players do of course have more resources in order to protect their markets, but are usually more concerned with competitors of similar size. However, in the case of new-entrant airlines, small carriers have in many cases risen from being nuisance to becoming a serious threat. The words of Morton Ehrlich of former Eastern Airlines summarises well the reasons behind strong retaliation on behalf of the incumbents when a new-entrant enters their market:

> **Successful aggressiveness begets more successful aggressiveness, and that leads to biggness[sic]. Then you've got a formidable competitor.** [267]

The immediate effect of the new-entrants' low cost structure was to focus the incumbents' management on labour costs. Re-negotiations and staff streamlining was the issue at the trunk carriers in the early eighties, that reached a peak when Continental Airlines declared Chapter XI bankruptcy in order to get rid of its union attachment.[268]

In the course of deregulation it has become apparent that the airlines have adapted and developed schemes that protect them against the effects of new-entrance to a degree. These are, yield management system, frequent flyer programs and hub and spoke operations. The yield management systems enables better management of the allocation of seats at different prices, which permits the incumbent airline to match the airfares of a new entrant with lower cost structure, without risking too great a drop in yields. This is possible by offering few seats at a very low price subsidised by the higher revenue generating seats and, therefore, destroying the promotional force of the low price offered by the new entrant. The frequent flyer programs work as passenger retention force for the large airlines. This is due to the fact that business travellers have been able to redeem free holiday trips incurred during business travel.

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[267] Upstarts in the Sky: Here comes a new kind of airline, Business Week, June 15, 1981, p. 89.

[268] For an interesting account of Frank Lorezo's union busting, see: Jennings, Kenneth M., Union-Management Tumult at Eastern Airlines: From Borman to Lorenzo, Transportation Journal, Summer 1989, pp. 13-27; and Bernstein, Aaron, Grounded: Frank Lorenzo and the Destruction of Eastern Airlines, Touchstone, 1991. See especially pages 14-20 in Bernstein's book.

The business travel is 'less' price sensitive and, thus, the business passenger aiming for a trip to Hawaii with his family will use the carrier whose frequent flyer club member he is, even though a lower fare is available with an other carrier. The third method, was the hub and spoke system, that increases the efficiency of the route network and boosts load factors on, otherwise, thin routes. It is, however, the power of the carrier dominating the hub that works as a buffer to entry on routes to and from the hub airport and permits premium pricing in the hub market.

A more detailed model of incumbent's historic strategic responses to entry has been suggested: (i) reduction of operating costs through two tier wage structure, productivity increase, deunionization, staff reduction and re-equipment with efficient aircraft;[269] (ii) streamlining of operations through hub and spoke networks and downsizing of equipment; (iii) [innovative] marketing strategy through development of frequent flyer programs, commission overrides, frequency increases, code-sharing, development of CRS's, alliances with commuters, service increases, controlled fare matching, aggressive advertising and predatory tactics.[270]

The most important items listed above are cost reduction and the development of the competitive tools. Although cost reduction has not provided the incumbents with comparable cost level to the new-entrants, the cost reductions have been, nevertheless, quite effective if one compares the U.S. majors with those of Europe (please refer to Chapter 8, for a comparison).

To conclude, one can infer that during deregulation in a market competition intensity increases usually as the number of weak carriers increases. Carrier weakness is escalated by poor management especially in terms of over-expansion or leveraged buy-outs. In this type of environment the largest financially strongest carriers will attack the weaker ones in the hope of killing them off in order to overtake their markets. The driving force is first and foremost the drive for growth.

7.6 Operations Strategy

7.6.1 Routing

New-entrants' route strategies have been along four general types: (i) turnaround; (ii) single hub; (iii) multiple hub; and (iv) independent markets.[271] The difference between turnaround and independent markets is that the latter is enroute multistop itineraries while turnaround markets are served with frequent non-stop flights. The way of classification presented in this thesis is taking into account the route lengths and the market-sizes, as these have much impact on the overall strategy of the new-entrant and is in that regard a better indicator of the new-entrants' strategic characteristics. Figure 7-7 shows these route dimensions for a hub and a direct service carrier. The direct service carrier has to select along the same dimensions as

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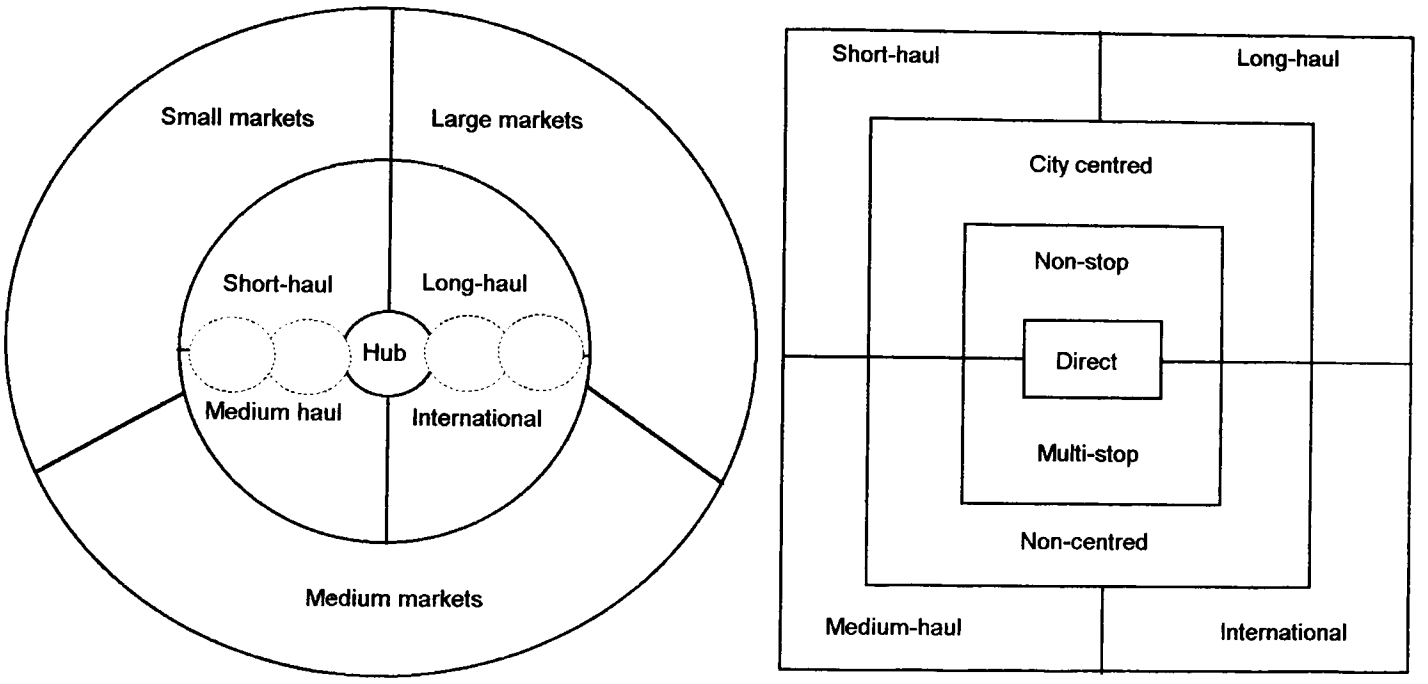
[269] Fuel efficient, lower maintenance, two pilot aircraft. Many airlines tried to increase the homogenuity of the fleet.

[270] Williams, George, Cranfield Institute of Technology [now University], College of Aeronautics,1990, p. 87-88. Ph.D. thesis.

[271] Op. cit. (Meyer), p. 129.

the hub carrier, that is what its haulage segments are going to be as well a the market size segments. The difference between the two is that the direct service carrier has to determine whether it is going to emphasise non-stop or multi-stop strategy and whether it is going to operate route clusters or city to city strategy. Route clusters are similar to hubs, except the carrier does not operate arrival and departure banks and has usually many clusters with relatively few nodes compared to hubs. An example of a carrier using this strategy is Southwest, while Air Florida was an example of the latter. The hub carrier has to select haulage lengths that affects its selection of aircraft and market size segments that influence aircraft selection and competition intensity, being greater as the markets get larger. In the figure the dotted circles depict a multi-hub strategy.

Figure 7-7 Route Strategy Decision Dimensions



People Express altered its route strategy apparently to pursue its growth strategy. Its length of haulage increased from 396 miles in 1981 to 630 miles in 1986. Route capacity changed from being relatively high in small markets to becoming very low in large markets. For most of its operating life the carrier operated a single hub at Newark. Then the carrier attempted to start a multi-hub operation, by acquiring Frontier, a move that failed. The market size emphasis moved from small to medium size to large markets in the last two years of operations.

A different strategy was adopted by Southwest. Its haulage has remained short-haul through the years, although, the average stage length has increased slowly from 265 miles in 1979 to 378 in 1992. The carrier does not operate hubs although operations cluster around many cities.[272] In terms of strategy dimensions the carrier has maintained its emphasis on high route capacity, roughly one type of operations with some cargo service and no-frills service in terms of amenities on board, but free

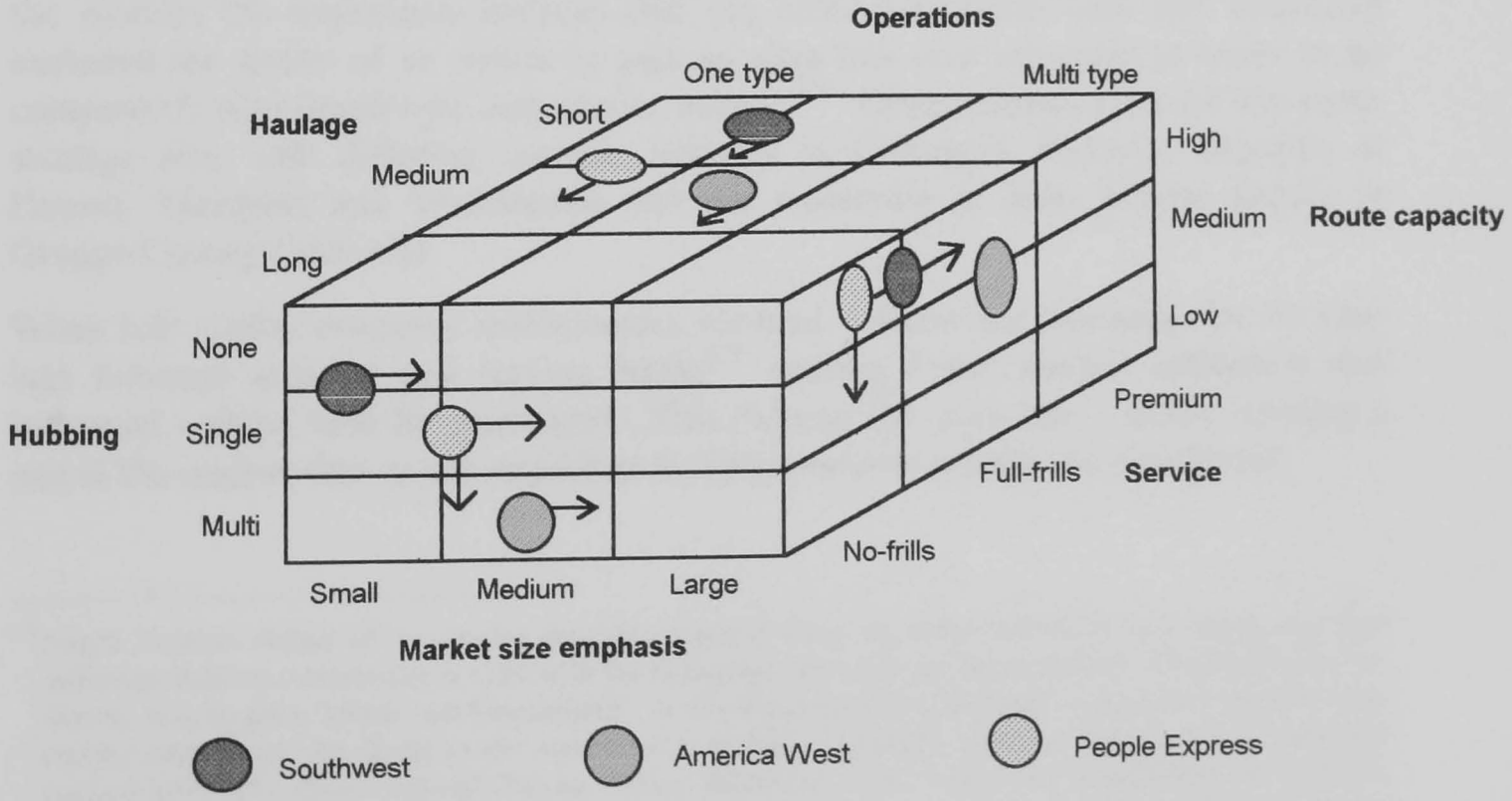
[272] In this regard a hub is defined as an operation where aircraft are scheduled to and from the city in 'banks'.

baggage.[273] It is apparent that Southwest has rooted its strategy on firmly grounded beliefs that it is not ready to drift away from. This strategic philosophy is to grow slowly, stick to return services, avoid full fledged hubbing, enter secondary markets and stay away from the big hub cities, offer high quality but few service amenities at very low fares.

America West's route strategy was one of hubbing from the outset. The original hub was in Phoenix Arizona and soon other hubs at Las Vegas and Columbus, Ohio were added. The carrier entered routes usually with high capacity, although, its emphasis on entering large markets has limited the route capacity offered due to infrastructure limitations. The carrier offers cargo service and does some charter work.

It is important to realise that a carrier's strategic drift can be away from successful initial route strategy due to fast growth or goal change. Figure 7-8 shows in what directions three major new-entrants have drifted during their operating life. All the carriers drifted towards increase in average haulage distance, probably related to segment additions due to growth, this conclusion is supported by their drift towards larger markets. The carriers do, however, differ on the hubbing issue, the service dimension and the route capacity dimension. The trade-off by entering larger markets is that the carrier's market-share in terms of route capacity will be much less than that in secondary markets due to more competition and infrastructure barriers.

Figure 7-8 Routing and Service Strategy Dimensions



The important aspect of most new-entrants' strategies has been their emphasis on low costs and low fares. This emphasis has affected their route strategy because it requires the carrier to reach a high load-factor due to higher break-even seat-factor. In short-haul markets the new-entrants have often reached this target by enlarging the

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[273]Southwest Airlines Flight Schedule, 31 October, 1993.

markets they have entered by luring people out of cars and buses, by offering very high frequency and low-fares.

The new-entrants have been less successful on long-haul routes. In addition many new-entrants have avoided the densest routes to avoid major's retaliation as most majors' emphasise long-haul domestic routes. Thus, one hears very frequently, the new-entrant's CEOs emphasising avoidance of the incumbent's domain. Many new-entrants started out with this policy but changed it as they had reached larger size. This was what characterised America's West, People's Express and Southwest's route strategy. To begin with they entered underserved cities, with low fares and high frequency avoiding the major's hub cities and head on competition. As People Express and America West grew larger they altered their strategy and entered high density routes served by the majors causing higher competition intensity. Southwest, although more reluctant to change its basic philosophy, seems to be doing the same by its 1993 entrance into the Washington DC market at Baltimore, that puts it head on with the financially weak USAir.[274] America West moved into the incumbents' domain by entering the New York City market (JFK, La Guardia and Newark), Baltimore/Washington and Honolulu. Their resulting problem was not only increased competition but also a problem of gaining customer recognition in this large market.

In the mid eighties the notion was that the rule for new-entrant's success was to start a hub in an unhubbed city. This was clear at the time looking to the two most successful new-entrants People Express at Newark and America West at Phoenix. In the nineties the impression became that the costs associated with hub structures excluded the ability of an airline to gain an ultra low cost structure in order to be competitive with Southwest and similar airlines.[275] Other carriers pursued this route strategy also with differing success: Midway at Chicago's Midway, Republic at Detroit, Memphis and Minneapolis and Air California at John Wayne airport in Orange County California.

When hub traffic increased inefficiencies resulted. These are primarily due to time lags between arriving and leaving banks[276] causing lower aircraft utilisation and increased waiting time for passengers. This reduces the passenger's *utility* opening a gap in the market that can be exploited by direct service airlines like Southwest.

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[274]People Express started off by serving secondary markets from the underutilised Newark airport and then intitiating head on competition in 1984 with the incumbents by entering Chicago O'Hare, Cleveland, Denver, Detroit, Los Angeles, Miami and Minneapolis. In the following two years more competitive markets were entered intensifying the threat to the major's even further. Similarly, America West selected secondary markets until 1987 when it entered Chicago O'Hare, Baltimore, New York's JFK, Philadelphia and Portland. Southwest, on the other hand, has been much more relaxed in entering primary markets. It entered Detroit in 1987, Denver in 1983, Indianapolis in 1989 and Los Angeles in 1984. True to its strategy the carrier entered Washington's Baltimore instead of Dulles and Chicago's Midway instead of O'Hare. Southwest and America West were main competitors on more than 50 percent of their routes in 1987. Perhaps that explains the reason for America West's decision to enter non-Southwest type of routes. Regardless of this America's West financial problems increased after the shift in strategy, just as occured at People Express.

[275]Hub hubbub, Airline Business, August 1993, p. 24. See: 'But it is increasingly apparent that hub operations and Southwest's cost structure are mutually exclusive.'

[276]Bank is a term for many aircrafts scheduled during a short time-interval.

In view of how profitable and strong Southwest has become as a competitor and hubs inefficient as a competition tool against such carrier, some incumbents like Continental have selected to establish their own Southwest clones in order to protect their territory (CalLite). This may be the main new feature of the incumbent's strategy in retaliation to new-entrance. An other way would be to dissolve the bank concept of the hubs creating a more constant random flow to and from the hubs resulting in greater fleet efficiency. But such a strategy will not solve the passenger waiting time problem, that will remain unresolved making the incumbent's market-share vulnerable to attack by the direct service carriers. Furthermore, such hub carrier strategy will cause a reduction in load-factors as fewer passengers will find it convenient to wait long hours for flights, making it necessary to shed flights to low density destinations. This can of course be offset by feeder carriers taking such routes over.

Table 7-3 Changing Hub Structures[277]

	Daily Departures	
Cities	*1990*	*1993*
Baltimore		
USAir	145	89
USAir Express	104	91
Dallas		
Delta	248	247
Delta Connect	85	101
Memphis		
Northwest	143	104
Northwest Airlink	75	108
San Jose		
American	75	51
American Eagle	60	33
Washington - Dulles		
United	104	52
United Express	89	157

The majors are leaving more of their secondary markets to the feeder carriers as can be seen in Table 7-3. The inefficiencies of small aircraft operations will, however, not lead to the necessary reduction in fares to stimulate the markets to the same degree as Southwest has been able to do, leaving the incumbent's route system still vulnerable. As a result the most viable solution for the incumbent would be to establish a 'Southwest' clone tying together the short-haul nodes in the structure where it is viable for jet operations leaving no opening for Southwest. At the same time the incumbent can consolidate its route structure by concentrating on high density, long-haul and international routes.

7.6.2 Equipment

New-entrants' equipment strategy can be divided into four main directions: (i) acquisition of older second-hand aircraft; (ii) leasing of second-hand aircraft; (iii) leasing of new aircraft; and (iv) acquisition of new aircraft. The strategies had much

[277] Airline Business, August 1993, p. 26.

to do with their associated costs. The costs were usually analysed in terms of up-front capital needed, the terms at which such capital could be obtained and the availability of leased aircraft to the new-entrants (more if excess capacity is in the market). Furthermore, as practically all the new-entrants tried to minimise costs, fleet homogeneity was an issue. For some aircraft types it could be a problem to acquire enough aircraft of a type, such was the case of: Fokker F28 and BAC1-11. The first strategy is the lowest cost and most viable on short-haul routes where the higher fuel consumption of older aircraft was less of a factor than on long-haul routes.[278] The buying strategy turned out to be useful for many new-entrants when it came to raising capital as their fortunes turned bitter, as debt could be secured on the equipment or it sold and leased back.[279]

The second strategy was to lease used aircraft. These were usually aircraft repossessed by leasing companies from bankrupt or troubled airlines or returned at the end of the leasing period by the original lessor. The new-entrant would then get a very good leasing rate, making it possible to keep the cost structure at a minimum. The third strategy of leasing new aircraft was not used very much by new-entrants, probably due to the leasing companies reluctance to place brand new aircraft into the hands of high risk ventures. It was a totally different story when it came to returned equipment whose usable-life had been mostly consumed. The fourth strategy to buy brand new aircraft has not been utilised much due to new-entrants' lack of capital or credibility in financial markets. This is of-course a different story for the established new-entrants like Southwest, that has been launching customer for some B737 types. An other carrier KIWI placed an order for 11 Rombac's BAC1-111's against an equity capital injection from the manufacturer of $1 million.

The most striking strategy and most influential in the 1990's was ultra high aircraft utilisation on short-haul routes. This cost saving strategy has been mastered by Southwest Airlines by achieving fast turnaround at gates usually around 15 minutes for compared to at least 45 minutes for the hub operating competitors. This allows Southwest to operate fewer aircraft to produce a comparable output of a competitor operating more aircraft. A low aircraft utilisation increases cost structure dramatically as more aircraft are required, crew, maintenance and management staff. Thus, if the airline can gain greater utilisation from aircraft it will achieve lower cost structure instantly, other factors remaining the same.

7.6.3 Code sharing/interlining/feeding

Many new-entrants avoided interlining in order to maintain as low a cost-structure as possible. Interlining was, however, highly important for the regional based new-entrants as they were already generating a large portion of their passenger flow by interlining with the large majors. Thus, it was only logical that they maintained this relationship after jet-operations started. These carriers kept, however, low profile in

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[278] Many of the used aircraft acquired or leased by the new-entrants were less fuel efficient than newer aircraft at the time: Boeing 727-100's, B737-100's and similar. The cheap used long-haul types acquired by new-entrants were usually very fuel in-efficient: DC-8's, B707's, B747-100's, L1011's and DC-10-10's.

[279] This was a major factor in People Express financial strategy.

order to be able to work with the incumbent rather than against. Empire, for example, generated forty two percent of its passengers from interlining in 1981 and thirty eight percent were interlined from Empire to other airlines. Air Wisconsin had even higher proportion or seventy five percent in each direction. Midway, a start-up carrier, generated only eight percent of its traffic through interlining, while Air Illinois gained sixty five percent of its passengers from interlining.[280]

The general rule is that carriers operating to and from a hub airport dominated by a major carrier have high proportion of their passengers interlining with such a carrier. Thus, it is necessary for the new-entrant carrier to have an interlining agreement in order to maintain adequate load. A carrier like Southwest, on the other hand, offering point to point service and operating only small hubs where it is the dominant carrier is not dependent on interlining. However, carriers mixing international and domestic operations need to offer interlining as large portion of the international passengers need to get on to other destinations. Hence, carriers like Air Florida had to offer interlining, but thirty percent of their passengers interlined from other carriers and twenty percent to other carriers.[281]

After a change in CRS regulation on neutrality, feeder carriers that interlined with the incumbents experienced a drop in display priority on CRS's. The result was increased emphasis on marketing agreements with incumbents in order to gain code-sharing. Code-sharing is, therefore, effectively an accepted loop-hole in the regulation that resurrects the feeders that experienced dramatic drop in demand after the regulation change, but at the same time pushed the feeders into the arms of the incumbents that gained more power over them, than before.[282] Code-sharing has, as a result, brought immense problems to the code-sharing feeder partner. In fact it is stated that no code-sharing feeder will survive a sudden termination of a code-sharing pact. Thus the code-sharing agreement is comparable to the 'one big customer' problem frequently cited as one of the reasons for company bankruptcy.

In order to reduce the dependency on one incumbent major, some of the independent feeder airlines have made more than one code-sharing agreement. Air Midwest, for example, had code-sharing agreement with the Texas Air's airlines and Trans World in 1988. The real meaning of code-sharing and the CRS bias regulation for a new-

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[280] Air Transport World, Special Report: Interlining an institution in transition, April, 1982, pp. 17 - 24.

[281] Op. cit. (ATW 4/82)

[282] A code-sharing agreement is usually part of a marketing agreement between a major carrier and a feeder carrier at a hub. Under such an agreement their schedules are integrated and airport facilities shared. The schedule integration involves the use of the same flight code for an entire trip from city A to a hub and on with the code-sharing airline to a city B. So on the ticket the flight is shown as flight XXX from city A to city B and no mentioning of change of planes or the hub in between. The present regulation says though that upon booking the passenger must be informed that he/she is buying a code-shared flight, thus, indirect. The origin of code-sharing can be attributed to the regulation on CRS bias that pushed interlining flights as third priority on CRS displays. This led to serious difficulties for feeder carriers that had marketing agreements with majors as their flights would suddenly be pushed from the first screen to perhaps the third or fourth screen. Given that TA have a tendency to book from the first screen this carriers lost immediately substantial part of their traffic after the change was effected. Thus, the interlining carrier had only one way of beating the system and maintaing its traffic level, that was to make an marketing agreement with the major involving code-sharing.

entrant is to foreclose a non-code-sharing new-entrant's ability to reach the majority of incumbent's passengers using a hub airport, due to the ease and convenience for the passengers to use a code-sharing partner. Furthermore, a flight terminating at a hub airport may actually be proportionally more expensive than a through flight, thus, reducing the passenger's fare incentive to use a non-partner's flight for the onward journey out of the hub.

The incumbents, in order to secure their feed, set the system up so that the feeder could not change partners. Through equity injection and outright acquisition the incumbents then set out to gain full control of their feeder airlines. Furthermore, it made sense for the incumbent to make initial agreements with more than one feeder carrier although the feeder's routes overlapped. Then as the feeder was depended on the code-sharing traffic the major could consolidate the traffic by either terminating the agreement and force the code-sharing partners it did not want to co-operate with into bankruptcy, or make an acquisition offer. The reason for such moves would be to control the feed in the hub area by eliminating independent commuter carriers and make it harder for other competing majors to gain foothold in the area. Code-sharing, is viewed positively by the public(and regulatory authorities) as it does provide small communities with linkages to hubs, services that would not be viable otherwise.

Code-sharing agreements have led to frequent lawsuits, where the feeders claim that the incumbents are trying to push them out of business, often in an attempt to favour one partner over an other or plainly to acquire the feeder carrier cheaply. Presidential, one of the noted start-up new-entrants, made code-sharing pacts first with Continental and then with United. The agreement with Continental 'wasted' management time as the carrier moved its operations from Dulles to Newark after the People Express acquisition. Harold Pareti Presidential's CEO estimated that the carrier's loss was in the vicinity of $30 million due to lost traffic centred around the Continental feed. In order to re-establish traffic, Presidential entered a code-sharing agreement with United which it later claimed to have pushed the airline to bankruptcy. The reason, claimed by Pareti, was that United overtook some of the more lucrative routes in the Presidential's route system.[283]

Code-sharing can be, as the paragraph above shows, a large factor in regional based new-entrant's demise especially if franchise-type marketing alliances accompany it. Although, it is not a one isolated cause of failure, it plays a large role in making the code-sharing feeder vulnerable due to the dramatic effect the cancellation of the code-sharing agreement has on the traffic levels of the smaller code-share partner. The regional based new-entrants did not have much choice, due to their mixed fleet and high costs, but to avoid competition with the incumbents. Thus code-sharing was the only way to forge growth but at the same time the carrier's lost their identity. A carrier that looses its traffic and identity will not survive for long. The relationship with the incumbent is, therefore, a one way street full of risks, especially if the smaller code-sharing carrier is gaining from a marketing agreement that provides favourable slots and airport facilities that wil be revoked if the agreement is revoked.

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[283] Airline Executive International, Could Presidential Have Survived?, September 1990, pp. 32-34.

As some of the new-entrants became very large they needed feed like any other major carrier. People Express, America West and Midway needed feed as they set out to be independent hub operators rather than feeder carriers, unlike most of the regional based new-entrants. People Express lacked feed to its Newark base, but gained from the vicinity of La Guardia and John F. Kennedy airports. In order to gain presence in other regions the carrier acquired Britt and PBA shortly before its demise. America West on the other hand started to feed itself from scratch by acquiring DHC-Dash 8s in 1986. America West did sign a feed agreement with Northwest Airlines in 1985 whose purpose was to provide the latter carrier with feed at Los Angeles for international flights to the Far East and at Phoenix for the Minneapolis hub, Detroit and Milwaukee.[284] The agreement was not in the spirit of traditional feeding agreements at the time as America West was not sacrificing any of its independence and Northwest was looking for feed to its international routes first and foremost.

Although, feeding is necessary for a large hub airlines in order to maximise their potential loads, new-entrants have not adapted the incumbents' strategy of creating a network of feeders carrying their name. New-entrants have rather been feeders themselves or fed themselves if necessary.

To conclude, the customer is both better and worse off with code-sharing and feeding depending on how one views it. In terms of making equipment change and ticketing smooth the customer benefits but if the customer likes to know whether he has to change planes enroute he can not detect such equipment change under code-sharing unless he is informed, but that is often omitted by TA's. The new-entrant, however, is in a similar situation as the customer, it needs the association with the incumbent to survive in the hub environment but that very co-operation is usually fatal in the long-term.

7.7 Marketing Strategy

7.7.1 Pricing

Pricing strategy is of an outmost importance in air transport, but at the same time very restricted of viable options for differentiation. Airlines can divide the aircraft into different product sections and the same product can be differentiated into price categories by attaching restrictions to the fares offered. Hence, a major differentiation becomes troublesome for individual airlines that are seeking to establish themselves on price or uniqueness. This is especially so for new-entrants because the basic airline product, the use of a seat from point A to point B, does not play any great importance to the passenger's ultimate benefit from a trip. Thus, it is no wonder that the People Express[285] low-fare, no-frills product became as popular as it did. The

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[284] Air Transport World, Northwest/America West combination strengthens position, July 1985, p. 54-55.

[285] People Express was granted a certificate by the CAB to offer scheduled passenger service between Newark and 27 major cities in 1980 and got its operating certificate April 1981. The airline offered unbundled service that is no-frills, where the passenger had to pay for a picknic basket on board, pay for checked baggage and pay for his ticket on board. As a result the company offered comparably very low fares and high frequency. The employees were shareholders and everyone was a manager. This seemed to give the staff a greater feeling of responsibility and flexibility, as most staff members could attend to more than one

reason is that for the low-end of the market, price is the most important part of the decision to fly. However, if the full service competitor can match the fare and provide frequent and convenient departure times, the passenger will of course select to be pampered for no extra charge with 'free' meals and baggage allowance. Therefore, an airline can not assume customer loyalty to any degree if the passenger can buy a better or cheaper product elsewhere.[286] In fact a carrier can only assume customer loyalty as long as it provides consistent high quality product at similar or lower fare than the competitors, that is either superior or at least not of a lesser quality. Furthermore, the passenger has the short-term view of not considering the long-term effect of his decision, meaning that he will select the incumbent if it lowered its fares, although it will lead to the exit of the new-entrant causing an increase in fares again. It is the tendency of the higher cost carrier to raise its fares as soon as a lower-cost carrier has been pushed out of the market. This erroneous consumer behaviour will always be present due to imperfect information and the tendency to get as much for the money as possible although that will be a short-term privilege.

The early new-entrants attempted to provide low fares, peak and off-peak, as their primary differentiation feature. Such fares had proved to be highly advantageous for pre-deregulation intrastate carriers like PSA and Southwest, that were small low-cost carriers.[287] Such fare structure was simple enough for the passengers to know what his approximate fare would be next time they travelled and the travel agents would not have to find the fares in their CRS's, but could refer to the airline's tariff with confidence. A schedule listed in the CRS's that included the tariff was usually enough. Southwest and People Express are the most noteworthy carriers that used

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staff function. The airline grew very fast and ran into financial difficulties that resulted in an acquisition by Continental in 1987.

[286]This was one of the things that Freddy Laker discovered and mentioned to have surprised him when the incumbents matched his fare and the passengers flocked away from Laker Airways. But this was no wonder as the incumbents provided a higher frequency and more convenient distribution system. Only a small portion of their trans-Atlantic capacity at the low fares would easily eat up Laker's market-share.

[287]The operating environment prior to deregulation had diverse effect on intrastate carrier's strategy at the beginning of deregulation. The intrastate carriers had more experience operating in a competitive environment prior to deregulation than the incumbents. Although, PSA and Air California had monopoly status on some intrastate routes that were not served by the interstate carriers, they were in competition with the interstate carriers on intrastate routes. PSA had experienced success against the CAB regulated trunks in California, but with the advent of Air California its success dissipated. The Public Utilities Commission had been inclined to approve rates considered to provide only 'reasonable' rate of return. Moreover, the Commission divided the markets between PSA and Air California on routes not served by the interstate carriers.[287] These developments just prior to deregulation, may have affected PSA's experience of full fledged competition as can be hypothesised by high increase in operating cost between 1978 and 1980. PSA, strangely enough, was therefore forced by the Public Utilites Commission to maintain its low fare structure prior to deregulation but needed to raise fares due to costs that were higher than the fares could sustain. Thus, PSA saw deregulation primarily as an instrument for raising fares and a way to abandon its 'forced' fare strategy. Southwest, on the other hand, kept its fare strategy, as its operation philosophy and cost structure was in line with it. 'The battle [with Braniff] provided a case study in airline marketing and the lessons learnt have stood Southwest in good stead not only in its intra-state expansion but, post-1978 in its operations outside Texas.' Source: Southwest Airlines: the alternative route to low costs, Lloyd's Aviation Economist, October 1984, p. 29.

this fare strategy and Southwest still does. These were, however, not the only fare startegies adopted by new-entrants.

Other fare strategies adopted by the new-entrants, were: (i) low overall fare regardless of prevailing fares; (ii) fare adjusted to the competition in each market; and (iii) 'normal' fares for premium service. If capacity and product characteristic enters the fare equation the strategies become something along these lines: (i) low fares, high capacity relative to market size and homogeneous but reliable product;[288] (ii) similar fares as the competition and low capacity in the market;[289] and (iii) marginally lower fares, low capacity in the market and high quality product.[290] America West, People Express and Southwest all followed the low-fare, low-cost, strategy and initial entry into secondary markets that are overcharged, underserved or both and served by higher cost carriers. Air Florida, altered its fares according to the competition in each market, leading to less market stimulation than Southwest and People Express generated with their comparatively low entry fares. Air Florida's strategy was among other factors due to its higher cost structure compared to People Express and other comparable start-up new-entrants. The low fares of People Express and Southwest reflect their low cost structures, while Air Florida and Midway, with higher cost structure, had to maintain higher yield in order to account for their higher costs. Due to Midway's high market-share at Midway airport an uncongested Chicago airport, it was able to charge higher fares, especially, due to the airport's easy reach from Chicago compared to O'Hare. This may be one of the reasons why Midway survived longer than People Express under deregulation despite the lower cost structure of the latter. The pricing strategies of the former intrastate carriers were, however, derived from pre-deregulation

Taking account of the intrastate example most start-up new-entrants took the stand of being price leaders. What is more they entered secondary markets and avoided primary markets dominated by the incumbents. Regional new-entrants, on the other hand, serving the incumbent's hub airports took the stand of keeping a low profile in terms of pricing and capacity in the hope of avoiding retaliation by the incumbents.[291]

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[288] In this case the airline might enter the markets of weaker incumbents and drown them with high frequency at low fares and when the airline has gained enough critical mass it will go for the trunk routes of the 'big' carriers. This was the strategy of People Express and America West.

[289] Here the airline maintains low profile, basically hoping the customers will select them although they do not have any unique selling proposition. This strategy is basically defunct as the passenger not having any incentive like low price, will select the more 'reputable' carrier unless that carrier is providing 'terrible' service compared to the new carrier. This strategy resembles, Midwest and World.

[290] Highly competitive strategy, but can be low growth oriented. The carrier usually pursuing low profile hopes that the incumbent wont bother with it in view of its low market share. Furthermore, it may be dangerous for the incumbent to retaliate if such carrier is able to skim most of the more lucrative markets, as fare war will harm the incumbents more than the newcomer, given that the newcomer can break-even at a much lower fare levels than the incumbents. This type of strategy facilitates a strong USP by achieving outstanding and highly flexible product. This type of a carrier is Virgin Atlantic.

[291] For a small new-entrant entering primary markets the story was entirely different as it certainly doesn't make any sense for an incumbent to cut fares in a lucrative market to force out a new-entrant having negligible market share. Air Atlanta was one such carrier operating out of Atlanta in competition with Delta and Eastern. Their strategy was based on premium service at standard prices: 'Anybody can match a price strategy. But I know that the major airlines are too musclebound to react to a service strategy that affects only a small part of their system' (Neil Effman, Air Atlanta). If the new-entrant intends to grow fast in the

Whose ultimate peace keeping was to secure a marketing agreement with the incumbent.

Meyer concluded that there were three basic incumbent pricing strategies in retaliation to a new entrant threat during early deregulation: (i) Introducing a new matching low-fare category; (ii) adjusting the range of an existing fare category; and (iii) streamlining the fare offerings.[292] The first strategy often resulted in a fare that was below cost for both the new-entrant and the incumbent. As the incumbent had usually much larger market-share its relative loss was much larger, as the new fare was usually offered for all capacity on the route. Then the new-entrant tended to raise fare levels until it was profitable for it but not for the incumbent because of its higher cost structure. The second strategy was to allow the new-entrant to build market-share until it became substantial and then match its fare. The third strategy was to match or under-cut the new-entrant but only for limited capacity restricted to the leisure market. In view of the fact that the incumbent had usually much higher frequency it could easily offer as many seats at partial capacity at the same fare as the new-entrant at full capacity. Furthermore, the incumbent often added frequency in order to leave as little incentive as possible for the consumer to travel with the new-entrant, and to pick up the extra demand that resulted from the fare reductions. The only reason a new-entrant carrier would survive such a strategy was if substantial portion of the incumbent's passengers were in the Avoidance Contour or Negative Contour of the model presented in Figure 7-3. A fourth reaction strategy, capacity controlled fares managed by yield management systems, became the norm after 1986. The system allowed the incumbent to adjust fares weekly or even daily according to the projected sales to higher paying passengers. Further reaction strategies by the incumbents was to match the new-entrant's fares without reducing the service. This effectually became the 'unique selling point'(USP) in the mind of the customer that preferred full service over limited service at the same fare. A further fare strategy alternative, was to increase service without increasing the fares.

The advent of the yield management systems (YMS) caused a major changes in fare strategy after 1985. American Airlines had developed their in-house CRS system to such an extent at that time that they had produced a highly advanced competition tool that allowed them to compete with other carriers by offering multiple fares on a single aircraft, sometimes up to 10 different capacity controlled adjustable fares. People Express could not compete effectively with this new development due to its unsophisticated computer reservation system. The off-peak and peak pricing was not effective anymore as American could undercut such fares easily for limited seating, generating high demand that would sell the low-fare seats easily and generate further

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market and has the facilities and means to do so, like People Express and America West, an entirely different stand may be taken by the incumbent. An example of such entry was when New York Air started service to Detroit from New York's La Guardia offering a $69 and $49 off-peak fare where Republic offered a $128 fare. Republic, true to its policy of matching any fare offers in its markets, dropped its fare to the same level, and when New York Air dropped its fare further to $39, Republic did the same and offered passengers 50 percent bonus coupons on some routes. The move nullified New York Air's attempts and fares rose again as a result. This is a typical Bertrand Duopoly situation as was discussed in Chapter 2.

[292]Op. cit. (Meyer), p. 134.

sales at higher prices. People's Express chairman Donald Burr stated in an article[293] that the development of the sophisticated yield management system at American was the final bite into his airline, causing its collapse due to dramatic reduction in demand.[294]

The picture for a new-entrant competing solely on price was, consequently, rather bleak after the advent of YMS, unless there was a strategy that counteracted the incumbents ability to match fares. The only strategy that appeared to have worked in the deregulated environment is that of Southwest Airlines whose simple fare-structure was, in combination with other factors, successful.[295] As mentioned before, its strategy is basically to enter underserved medium to high fare routes, with direct service, high frequency, high quality and very low fare.

Service features offered have major impact on fares due to the associated costs, as the next section will depict.

7.7.2 Service

The new-entrants selected three main strategies regarding service: (i) no-frills service in order to keep fares down; (ii) full-frills service in order to match service at lower fares; and (iii) premium service at 'normal' fares. The first strategy was important in order to keep costs down and being able to offer very low fares. The service amenities missing in such cases were usually, as is apparent from Table 7-4, hot meals, interlining and ticket offices. All of the airlines offered, however, meals although very low-cost carriers like People Express charged the passengers for it. Such strategy is in fact unbundling of the service features, meaning that the advertised ticket price is very low, but most passengers will have to add the cost for checked baggage and meals if those service features are used.[296] The second strategy was to keep costs down but match the incumbents in terms of service features. Carriers following this strategy attempted to offer all the same features as the incumbent but at a lower price due to lower costs. Lower cost was achieved through leaner organisation structure and lower pay scales. Thus, lower fares was the way they intended to eliminate the customers' incentive to select the incumbent for the sake of more service. The problem with the strategy was, however, that when price equilibrium formed, particularly after the advent of capacity controlled fares, passengers would rather select the incumbent due to its name recognition and extra service for the same price. The third strategy, premium service, is costly for the carrier but is usually offered at first or business class prices. The problem with the strategy is its segment, the business passenger, it requires high frequency in order to build passenger loyalty. These services have not been able to match the frequency of

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[293]Cancelled Flights, CIO, April, 1989. pp. 48-54.

[294]Op. cit. (HBS 490-012), p. 19.

[295]Southwest airlines was established in 1967 and started intrastate operations in 1971, in Texas. Southwest has been profitable for most of its operating life.

[296]In 1985 People Express charged $3.0 per bag, $3.0 for light snacks on afternoon and night flights. Furthermore, the carrier offered meals on transcontinental and international flights.

the incumbent carriers, therefore, suffering in terms of demand. Furthermore, carriers depending on only one segment, experienced large weekly and seasonal fluctuations in demand.

To the contrary of what may be believed People's Express service levels may not have been the reason for their collapse as much as their explosive growth. Of course the quality of service suffered as a result of the fast growth, especially at the crowded terminal in Newark. Nevertheless, it must be understood that the customer segment People Express aimed for was ready to sacrifice traditional airline service amenities in exchange for lower fares. The problem was very real when the incumbents offered the same fares but full service. In that case the passenger would of course maximise his benefit and choose the low fare and full service carrier.

Table 7-4 Service Offered by Early New-entrant Airlines[297]

Airline	*Snacks and drinks*	*Food*	*Interline tickets and baggage*	*Ticket offices*	*Automatic ticketing*	*On board ticketing*	*Ticket by mail*
Air California	Yes[a]	No	Yes	No	Yes	No	Yes
Air Florida	Yes	Yes	Yes	Yes	No	No	Yes
Capitol	Yes	Yes	Yes	Yes	No	No	Yes
Jet America	Yes	Yes	Yes	No	No	No	Yes
Midway	Yes	No	Yes	No	No	No	Yes
New York Air	Yes	No	No	No	Yes	Yes	Yes
Pacific Express	Yes	No	Yes	No	No	No	Yes
PSA	Yes[a]	No	Yes	Yes	Yes	Yes	No
People Express	Yes[b]	No	No	No	No	Yes[c]	No
Southwest	Yes[a]	No	No	No	Yes	No	No
World	Yes	Yes	Yes	Yes	No	No	Yes

The survey was conducted in spring 1982. [a]. Service on some flights. [b]. No free services [c]. Added this feature soon after the survey.

One of the reasons that America West has survived longer than People Express was that the carrier gathered for business passengers as well as the leisure passenger, avoiding weekly and seasonal traffic cycles to some extent. In 1987 the year People Express was absorbed into Continental, 50 percent of America's West passengers were business travellers.[298]

If we look at the new-entrants beyond service features and at quality, they seem to have reached fairly good marks by their passengers if DoT complaint rates are used as an indicator (see Chapter 3). This conclusion is reached if the charter based new-entrants are excluded, but they achieved very high complaint rates in the system. Fast growth does not seem to have been particularly harmful in terms of service quality, although, People Express complaint level is relatively high. Conversely other fast growing carriers had low complaint levels: Muse and America West, for example.

To conclude, it is clear that it was not enough to offer low prices and good service, the new-entrants had to be able to reach the potential customer, as the next section will demonstrate.

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[297] As reported in: E. Bailey, Airline Deregulation, MIT Press, 1985, p. 104.

[298] Fenger, Helena, America West Sets a Risky New Course, Arizona Trend, Vol.1, ISS:5, Jan 1987.

7.7.3 Market Penetration

Figure 7-9 shows the cost associated with CRS participation and TA's emphasis. There are four combinations possible: (i) emphasise TA's and participate in a CRS; (ii) emphasise TA's but not participate in a CRS; (iii) de-emphasise TA's but participate in a CRS; and (iv) de-emphasise TA's and not participate in a CRS. For a low-cost, low-fare new-entrant it would become a major cost as percentage of total ticket price to pay both booking fees and TA's commission. The new-entrant will, therefore, have to decide what distribution strategy it wants to select on the basis of distribution costs.

The lowest cost new-entrants tried to circumvent CRS's use. For example, People Express did not use commercial CRS's until after its Frontier acquisition in 1985. Furthermore, Southwest[299] was only listed on CRS's, meaning that travel agents could check its flight schedules but bookings had to be made with Southwest directly through the phone system. This, like discussed before, has allowed the carriers to avoid booking fees that added on TA's commission amounted to a considerably greater proportion of their ticket price than that of the large majors were fares tended to be higher and better controlled through yield management systems.

People Express, Southwest and Air Florida depended almost entirely on the phone system, employing a large force of telephone-sales people. The systems worked adequately to begin with, but the problem starts when the growth level is high and special promotions occur causing major peaks. This causes excessive demand on the telephone reservation system leading to frustrated customers and the 'bad service' stamp. This became the single greatest customer barrier at People Express, as well as at Air Florida during the latter part of their life-cycles.

Figure 7-9 Travel Agent and Commercial Reservation Cost Matrix

TA's Emphasis \ Commercial CRS Emphasis	Yes	No
Yes	*High*	*Medium*
No	*Medium*	*Low*

Attempting to circumvent this problem, People Express had a stand-by option for passengers, their system had, therefore, a component independent of booking systems

[299] Southwest does now participate in a CRS system allowing bookings on a low level. This change was implemented due to policy change by the CRS owners as described in the following paragraphs.

both CRS's and telephone reservations.[300] People Express, nevertheless paid commission to travel agents if passengers wanted to use them, but the necessity was at a minimum. This sort of a service was no problem for students and tourists on flexible schedule but less desirable for business travellers and passengers interlining with other airlines.[301]

An other important issue of the new-entrants' distribution strategy is TA's commission levels. The commission level can work as a tool to make the airline more attractive to the TA's by offering higher commission than the competition or more free travel, which the TA's can use to reward their best customers, or use for staff.

Those new-entrants that are not emphasising TA's as their primary distribution outlet are consequently paying less commission as can be seen from the level of commission paid as percentage of revenues by Southwest Airlines. Carriers operating international flights pay higher commissions on those routes.[302]

Table 7-5 Airlines' Travel Agent Commission as Percent of Revenues[303]

	Commission as % of revenues				
Airline	*1982*	*1983*	*1989*	*1990*	*1993*
New-entrants					
America West			7.6	7.9	8.5
Air Wisconsin			8.4	8.1	
Empire			7.7	10.7	
Horizon			7.4	7.1	7.7
MGM			7.6	7.7	
Midway			8.8	8.2	
Southwest	4.99	4.22	6.3	6.3	6.5
Air Cal	6.57	6.48			
Capitol	8.11	3.28			
PSA	6.36	5.90			
World	15.66	8.58			0.6
Major's					
American	7.08	7.72	9.6	9.9	10.1
United	7.35	7.56	14.7	16.8	19.6
USAir	6.33	6.23	7.6	7.5	8.8
Northwest	8.54	8.84	17.3	17.9	19.6
Delta	5.72	7.00	10.7	10.4	11.3
Eastern	6.34	6.98	10.2	9.3	-

Note that 1982 and 1983 levels are domestic commissions only, while 1989 and 1990 levels include international. Northwest pays, for example, much higher commission on international travel than domestic, causing inflation in the percentages shown.

It is clear that the new-entrants will have a problem surviving with only their own distribution system (phone-reservations, Internet reservations) as the newest action

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[300]The system was organised in such a way that the passenger would list, upon arrival at the airport, on first-come first-served basis instead of booking through a TA or the phone. A booking through the phone was actually no guarantee of a seat due to the heavy overbooking practised by the airline. Furthermore, payment was collected on board reducing further the necessity for extensive sales-offices or the use of TA's.

[301] That explains the serious problems the carrier had with building an image for the business segment during the latter part of its life-cycle

[302]New-entrants that do not emphasise TA's usually run a phone-reservation system, but no new-entrant carrier known of, has refused commissions to TA's using the phone reservation system. In fact some of the new-entrants have provided TA's with separate reservation lines.

[303]Air Transport World, October 1984, pp. 83-86. ,and Air Transport World, November, 1991, pp. 117-119. Air Transport World, October, 1994, pp. 102-105.

by the commercial CRS's is to refuse carriers to be only listed on their CRS's. This means that now the new-entrants' using this feature (Southwest) have to pay for lowest-level participation or disappear from the system. This move alone will raise the new-entrants' cost structure unless other strategies are adopted. So in the future it is hard to see that new-entrants will be able to avoid the CRS's and circumvent the TA's to any large degree as their size increases (see the discussion on People Express and Air Florida in this Section).

One way of creating demand for a carrier in the distribution system is to operate some sort of a loyalty scheme to increase customer retention, as will be discussed in next section.

7.7.4 Customer Retention

The origins of frequent flyer programs (FFP) can be traced to American's Airlines launch of the American Advantage Scheme in 1981. The purpose of the program was to reward business flyers that flew frequently but usually on coach class at higher fares than economy passengers. In order to distinguish this passengers and retain their loyalty American developed the named program.

The FFP's have become a major strategic tool in maintaining passenger loyalty in a customarily low loyalty business. Furthermore, the programs have enabled the airlines to identify an important target group for promotion purposes.

Table 7-6 shows clearly the importance of frequent flyers to an airline in terms of number of trips. Those taking twelve or more trips per year, although being only 1.7 percent of the total number of flyers, generate 31.6 percent of the total number of trips. Not only do these passengers fly more, they also pay higher fares as they are usually travelling on business. Thus, it is natural for any airline to try to maintain their loyalty.

Table 7-6 U.S. Flyers and Their Trips 1985[304]

Trips frequency	*Number of flyers (m)*	*Percent*	*Number of trips (m)*	*Percent*	*Average number of trips per flyer*
1	23.8	49.8	23.8	16.1	1.0
2-5	18.7	39.1	50.7	34.3	2.7
6-11	3.6	7.5	26.7	18.0	7.4
12 +	1.7	3.6	46.8	31.6	27.5
Total	47.8	100.0	148.0	100.0	3.1

Frequent flyer programs (FFP) are often cited as one of the largest obstacles to effective competition by smaller carriers and new-entrants. This is embodied in the fact that the passenger will select the carrier in which FFP he is a member, often without a concern for the possibility of lower fares or schedule convenience of other carriers. The reason for this is that a business person will earn the 'mileage' points flying on behalf of the employer, but the 'rewards' will be used for personal travel.

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[304] Lloyds Aviation Economist, February/March 1986. The study was undertaken in the United States by Gallup for the Air Transport Association of America on the air transport market in 1985.

Thus, the higher the mileage the more lavish destination on the FFP's carrier's route system and class of travel, he can select. As a result, exotic holiday destinations become important for the carrier as they increase the popularity of its FFP. This fact alone often makes the FFP's of smaller carriers and new-entrants unappealing to the business person. As a result, it is of a primary importance for new-entrants to gain access to a link-up with the FFP's of larger airlines.

Many new-entrants will attempt to forge a 'joint marketing agreement' with an incumbent carrier and include a tie-in with the larger carrier's FFP, thus, the disadvantage of their size is minimised. Table 7-7 shows examples of such tie-ins in the past between new-entrants and incumbent carriers.

Table 7-7 New-entrant's FFP's Tie-ins in 1987[305]

New-entrant/Regional	*Program tie-in*
Air California	American Advantage/Northwest OrientFree Flight Programme
Mid-Pacific Air	Continental One Pass/Northwest OrientFree Flight Programme
Midway	Canadian International Airlines and Air New Zealand
New York Air	Continental One Pass
People Express	Continental One Pass
Air Midwest	Continental One Pass
Business Express	Delta Automated Mileage Programme
America West	Northwest Orient Free Flight Programme
Express 1	Northwest OrientFree Flight Programme
PSA	TWA Frequent Flight Bonus Program/USAir
Air Wisconsin	United Airlines Mileage Plus
Aspen	United Airlines Mileage Plus

Frequent flyer programs of larger carriers are obviously of greater benefit to the user, supporting further the stronghold of large-market share carriers. The next section will cover market-share and its importance for new-entrant carriers.

7.7.5 Market-share

The airline industry has, as mentioned before, put market-share strategy high on the agenda, based on the assumption that 'survival' as well as profitability depended on large proportional market-share. This theory is however debated by many, that argue that market-share driven strategy will lead to cut-throat price competition leaving the whole industry worse off. An other argument is that market-share strategy for the sake of market-share, can not work, simply because the increase in market-share has to be substantiated by other factors like: relative product quality, niche-marketing or cost leadership.[306] In order to cast some light on what argument is nearest to the actual fact in air transport markets, the U.S. General Accounting Office(GAO) performed a detailed study[307] on the impact of market-share on fares. A general

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[305]Travel & Tourism Analyst, October 1987.

[306]For a more analysis on new-entrants' market-shares in comparison to the incumbents, please refer to Chapter 3.

[307]The Base-Case Market-Share Equation with 'Endpoint Dominance' was: Intercept, 4.136; Scheduled service(the capacity devoted between the two airports) 0.156; distance(equals the one-way, straight-line

finding associated with the arguments produced above, was that market-share actually affects pricing in such a way that a 23 percent market-share advantage due to a rise in enplanements was associated with 2 percent higher fares on the average.[308]

The GAO produced an econometric model on the 'Effects of Airline Market Concentration and Barriers to Entry on Airfares'.[309] The model showed that a 65-percent increase in an airline's average enplanement shares at the airports on a route was associated with 21-percent higher market share. Furthermore, if the largest competitor of a given airline increased its enplanements share by 45 percent it caused a 6 percent decline in market-share on a given route. The model implied as well that an airline's market share tended to be higher if it owned a computerised reservation system that was dominant at the endpoint cities and had a large proportion of the gates in the same cities.[310]

The GAO findings presented above are average findings. Meaning that the effects of the findings are not uniform for all situations. If the largest three carriers increased their enplanement-share by 65 percent it would lead to 15 percent higher fares on the routes involved, compared to a non-significant increase in fares for the other airlines.[311]

If the GAO findings are compared to the PIMS Strategic Institute (see Chapter 10) findings one can see that there is a similarity, supporting the GAO results. Market leaders(largest three) in the PIMS data-base were enjoying average return on sales of 12.7 percent, compared to 4.5 percent for firms that ranked 5th or less in market-share.[312] This indicates that market-share leaders enjoy a price premium compared to the smaller share businesses.

Referring back to Porter's theories, he stated that rivalry would increase as growth levelled off and companies started to strive for growth by snatching customers from each other. The airlines as such invite intense 'rivalry', as high fixed cost is a

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mileage of a route), -0.106; route direct percent(measures the proportion traffic on a route that is direct rather than connecting), 0.078; relative directness(percentage of direct traffic on a route compared with the percentage of direct traffic offered on the route by all carriers), 0.119; CRS(based on revenues booked through carriers' CRSs, measures the degree to which the given carrier has a CRS advantage over other carriers on the route), 0.082; relative preferences(a relative preference variable that is equal to the given carrier's preference rating divided by the average rating for all carriers serving the route. Based on the IAPA survey), -0.038; traffic volume(mesures the total number of origin-to-destination passenger directional trips on a route), -0.179; enplanements of others(equals the largest enplanement share of any carrier other than the given carrier at either endpoint airport of a route), -0.134; relative costs(equals the weighted average of the cost per available seat mile of all carriers serving a route divided by the cost per available seat mile of the given carrier), 0.562; endpoint dominance(enplanement-share that equals the average of the carrier's share of enplanements, or passenger boardings, at each of the endpoint airports of a route), 0.323. R^2 = .57, n = 3,331. All variables were significant at the 1 percent level.

[308]The United States General Accounting Office, GAO/RCED-91-101, Airfare Econometric Model, April 1991.

[309]Op. cit. (GAO/RCED-91-101), p. 6.

[310]Op. cit. (GAO/RCED-91-101), p. 6.

[311]Op. cit. (GAO/RCED-91-101), p. 7.

[312]Robert D. Buzzell and Bradley T. Gale, The PIMS Principles: Linking Strategy to Performance, The Free Press, New York, 1987, p. 76.

characteristic of airlines creating strong pressure to fill capacity, in other words to maintain a high load factor. If excess capacity is present as has been in the airline industry from 1990, fare war will occur if one competitor disrupts the fare equilibrium. This is because the reacting competitor can not stay inactive under the threat of loosing market-share. In addition, if firms are many or quite similar they tend to enter intense rivalry in order to win market share, because they are battling for the same customers, especially if the industry has low customer loyalty. If there is an undisputed leader, he can induce discipline if there is an attempt by the weaker player to disrupt the fare equilibrium. Such discipline can be in the form of threat to dump prices in a hub city of major importance to the disciplined player, hence, initiating a fare war.[313]

Table 7-8 Comparison of Majors' and New-entrants' Number of Airports with Market-share in Excess of 10 Percent

Airline	**1981**				**1986**				**1991**			
	Market-share Intervals in Percent (Number of Top 50 Airports)											
New-entrants	*10-30*	*31-50*	*51+*	*Tot*	*10-30*	*31-50*	*51+*	*Tot*	*10-30*	*31-50*	*51+*	*Tot*
Southwest	3	0	2	5	3	2	1	6	6	1	3	10
America West	-	-	-	-	3	1	0	4	2	2	0	4
Midway	0	0	1	1	0	0	0	0	0	0	0	0
People Express	0	0	0	0	2	1	0	3	-	-	-	-
PSA	3	0	0	3	5	0	0	5	-	-	-	-
Republic	7	0	0	7	1	1	1	3	-	-	-	-
Majors												
United	14	3	0	17	9	3	0	11	11	3	1	15
American	18	1	0	19	11	2	1	14	18	2	4	24
Delta	14	3	1	18	11	2	1	14	11	3	3	17
USAir	7	1	2	10	5	2	1	8	8	2	7	17
Trans World	10	3	0	13	1	0	1	2	1	0	1	2
Continental	4	1	0	5	1	1	1	3	2	2	2	6
Eastern	11	7	0	18	12	4	0	16	5	1	0	6

Based on Maldutis 1991. In order to examine individual new-entrant airline's top 50 airports' market-shares, please refer to Appendix A.

When looking at the new-entrants in terms of market-share one can quickly assess that large market share at airports is important in order to fend of retaliatory action on behalf of the large incumbents and also in order to maintain higher yield. In fact Appendix A, shows that the new-entrants that gained dominant market-share at one or more airports tended to survive longer and enjoy greater overall success than those that did not. In fact one can establish from Table 7-8, that carriers obtaining substantial market-share at major airports fared better than those carriers achieving minor shares.[314] This is clearly apparent if one examines: Southwest, Midway, People Express and America West, which all gained large market-shares at secondary airports near to large cities.

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[313]Porter's theory may not apply to air transport as the increase in entry occurs when there is excess capacity reducing the 'financial barrier' to entry and when the incumbents are weak due to a recession. According to Porter the airlines should be having intense 'rivalry' at that time. The fact of the matter is, however, that this rivalry occurs only for a period of time during the downward swing but seems to fade off as the economy passes the bottom of the curve, creating opportunities for new-entrants.

[314]One must recognise that some of these carriers turned these airports into major airports by serving them.

In view of this findings it is apparent that market-share as such does matter in the overall ability of the airline to earn higher returns. It is, however, also apparent that high city-pair market-share is important in addition to high market-share at the airports on each end. This is exactly what Southwest airlines has practised in their route strategy, to cluster their operations at many secondary airports, although, hubbing is not their feature they aim for substantial market-share at each airport served.[315]

Then the question of the impact of relative quality on market-share remains. Namely whether high quality carriers are gaining market-share for that reason rather than forcing up its market-share through price cuts and use/abuse of dominant position. Southwest had an average complaint rate of 0.70 complaints per 100.000 passengers from 1981 until 1991, while America West had 1.73 from 1984 to 1991, and Midway 2.47 from 1984 to 1991. The average for all jet operating airlines from 1981 to 1991 was 3.22 and 3.63 for NEs only, and from 1984 to 1991 it was 2.95 and 2.4 for NEs only. All of the airlines are below the averages except Midway that was slightly above the NEs average. Unfortunately exact complaint data was not available for all the operating years of the airlines involved, making comparisons and conclusions problematic. At any rate, there seems to be a relationship as no airline with complaint rate above the median (based on the average) survived for a substantial period of time with the exception of World (charters have been in and out of scheduled operations). The same goes for market-share as none of the carriers having above average complaint rates reached major status or near major status, except People Express.

The PIMS program reported on the issue of superior product's effect, that it was more important for lower-share businesses in terms of ROI. Thus, it is likely that a strategy of a superior product may be important for new-entrants. Not only that but also that superior perceived quality is necessary if market-share increase is to generate increased ROI. Thus, it is evident that new-entrants are unlikely to survive without the two, especially if one cites the successful new-entrants, Southwest in the U.S. and Virgin Atlantic in Europe.

7.7.6 Promotion and Advertising Strategy

In the early days the new-entrants gained considerable free promotion by being newsworthy. Carriers like Southwest and Muse knew from the outset the importance of maintaining high profile in the media and integrated into their image a 'fun' element in order to keep the airlines in the news. Another method of gaining free media coverage was to offer a comparatively very-low promotional fare that would attract major media coverage, treating the new-entrant as the low fare saviour from the high fare incumbent, contrasting incumbent as the 'bad guy' exploiting the community.[316] The result, was an immediate presence in the market reducing

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[315]Southwest's routes center at following cities: Reno, Sacramento, Oakland, San Francisco, Los Angeles, Phoenix, Albuquerque, El Paso, Dallas Love Field, Houston Hobby, San Antonio, Midland/Odessa, Kansas City, St. Louis and Chicago Midway. Some other airports have fewer linkages, that is one to three.

[316]Op. cit. (Levine, 1987), p. 480.

substantially promotional and advertising costs. As entry by new carriers became more common-place, new-entrant carriers began to exit markets and incumbents gained experience in dealing with the new-entrants, free media coverage played a lesser role in entry as well as in maintaining good-will for the new-entrant. As a result entry costs increased and new-entrants had to look very carefully on their promotion schemes.

New-entrant's promotion schemes are usually much weaker than those of the incumbents due to the lesser size of the new-entrant. Thus promotion has to be highly targeted in order to be effective. Braniff II for example emphasised personal visits by company sales people to travel agencies in destination cities in order to explain the company's plans and assure the agents that the new Braniff was a different story than the old Braniff. Such promotion is, however, very difficult for any airline due to the very many TA's operating. As a result, such strategy can only work in a very concentrated fashion, for example, in a city market, which the airline is entering.

Promotion strategies have varied as much as the carriers involved. In order to give some examples one can name Braniff's II, 1986 promotion 'Penalties Stink' in order to battle with American Airline's fares that had 50 percent penalty on date changes on their 30 day advance purchase fares. The promotion increased Braniff's load factor allegedly from 56.3 percent to 66.7 percent during the month following the campaign. The fare strategy had its cost, as yields dropped as a result.[317] This move by Braniff against the competitor's actions gives an example of a promotional strategy that became effective and came towards a segment of the market that wants to pay low fares but needs the flexibility of changing ticket dates due to various reasons. In fact marketing at new-entrant airlines, demands constant creativity in order to cancel the competitors hostile moves without sacrificing profitability.

Incumbents' advertising soon took the stand of battling the low-fare oriented advertising of the new-entrants. That was actually a diversion from the pre-deregulation emphasis on service. The incumbent carriers were often able to rebuff an advertising campaign by a cost efficient low-fare new-entrant, by engaging in low-fare advertising citing fares that did not actually resemble the real cost to the passenger due to imposed black-out periods, low seat offerings and continued advertising after the low fare seats were sold-out or when the black-out period was in effect. As a result the new-entrant did not receive the attention it could have and the sales people of the incumbent carrier had the opportunity to divert passengers to the higher fares on offer, knowing that a certain percentage of callers would actually accept a higher fare.

An important part of any promotional strategy is the image of the carrier and branding of the products, as will be discussed in the next section.

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[317] Air Transport World, Braniff Changes Strategy, October,1984, p. 42.

7.7.7 Branding and Image

Airlines have had considerable difficulty creating an image that is unique and defensible. Airlines have for a long time competed on service features for their business class or first class, but on price when it comes to economy class. How do the airlines then create their image and brand their products? New-entrants have allegedly placed less importance on image creation than crude advertising in order to stimulate demand. Advertising focusing on price has been the main policy of new-entrants in the United States. The low-cost structures geared toward being able to offer low fares has not allowed the new-entrants' to spend much on image advertising per se. This has led to poor passenger retention as soon as a competitor matches or under-cuts the new-entrants fares as large part of any new-entrant's customers are bargain hunters. Having said this one can cite an exception, Southwest airlines, that has considered its image carefully, just as its former competitor Muse Air did. These two airlines carefully created an image of 'fun', as mentioned before. Such image, apparently, fits new-entrants quite well as the older established airlines will hardly follow suite. The image of 'fun' is geared towards the younger people and the 'baby boomers' that are entering the top layers of society and those that are bored with the 'sameness' that characterises airlines' image in general.

Muse Air used in its inauguration advertising, airline 'personification' to position itself among the competition.

> **...Southwest, with its irreverent approach, would be Bo Derek. Braniff International, projecting a grand dame, high fashion look would be Sophia Loren or Princess Grace. Texas International's zany peanut fares advertising made it a Suzanne Sommers or Goldie Hawn. American would be Dallas Cowboy football player turned business man Roger Staubach - confident, stable and almost too serious, while Delta could be the no-frills, humorless and literal coach Tom Landry. If this were accurate, then Muse Air was to be the Urbane, classy and smooth Peter Graves, Bill Blass, or even George C Scott.**[318]

The quotation above shows one aspect of Muse Air's image creation, namely that it was going to be humorous, as well as classy, like its aircraft paint scheme portrayed with its signature style name. The interior was to begin with a single class layout with high profile leather seating and three lounge areas. The interior look was designer made and harmonised with flight and ground crew uniforms and airport and boarding decor.[319] Leg room was generous, seating was pre-assigned and there was an unique no-smoking policy on all flights. Whether the careful image creation was effective in differentiating Muse Air from the competitors spelled into greater demand is not clear. In the inauguration year load-factors were only 35.8 percent, rising to 47.0 percent in 1985, with 1983 peak of 50.9 percent. That is perhaps not poor in view of the carrier's emphasis of offering service to the high-end of the market.

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[318] Airliners, Class Act: The Muse Air/TranStar Story, No. 21, Spring 1993, p. 26.

[319] Op. cit. (Airliners), p.26.

Strangely, enough, People Express had a very strong image as the 'peoples friend' that was on a crusade to beat the high fares of the big 'unfriendly incumbents', but it soon developed into an image of poor quality service. The created image worked enormously well for the carrier as long as it was able to offer a substantial price differential, despite the negative image it soon earned. As soon as People Express started to enter other market segments like the business segment, the initial concept of serving the low end of the market, 'People' became a liability and the 'old' image caused a conflict in the customers mind as to what the carrier stood for. Advertising was suddenly geared towards the business person, whose image of the carrier was rather poor in terms of quality and the leisure traveller got the notion that the carrier was going up-market, cutting down on the fabulous offers it had been geared to in the past. In this way the carrier strived for something it could not get and alienated its old customer base in the process.[320]

7.8 Financial Strategy

7.8.1 Costs

Louis Gialloreto proposed a model of 'U.S. industry airline carrier types' whose basis is very much grounded on cost strategy. Type 1, is high-cost, full-service; Type 2, low-cost, low-service; and Type 3, is low cost, low to medium differentiated service levels. The first type was the pre-deregulation type, while the second type was the opposite and characterising many new-entrants. The third type is low-cost as the second type but offering a differentiated product based on Type 1, full-service or 'premium service', offered by Air Atlanta, Air One and similar.[321] The concept explains well that the airline can basically select three cost strategies that very much shape the carrier's other strategies, due to the importance of the cost basis in the determination of fares, equipment selected, routes served and so on. The fact of the matter is, however, as Gialloreto states that no airline selects the Type 1 strategy in the deregulated environment and those that started out as Type 1 tried to approach the Type 2 concept. Thus, there are only two basic viable cost strategies available to new-entrants, to enter at low-cost and low service, in order to keep fares at a minimum, or to enter at low-cost but with differentiated product. The latter strategy is, of course, higher cost but the relative cost of producing the 'premium' product is relatively low compared to the Type 1 incumbents. Some of the new-entrants went back and forth between Type 2 and 3 strategies. Midway started Midway-Metrolink and became a Type 3 carrier as a result, just like New York Air that increased their service in order to match that of Eastern. In addition, People's Express, the Type 2 carrier, started to approach the Type 3 carrier by stepping up its service in order to gather for business travellers. America West started out by providing comparable service as the incumbents, thus, being classified as Type 3 from the start.

The Gialloreto model as such is useful for classification purposes of airlines, but it does not make a clear distinction between ordinary low-cost full service carrier and the quite different 'premium' service carrier. The operating costs, operating

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[320] See also: William H. Davidow and Bro Uttal, Harvard Business Review, July-August, 1989, p. 78.

[321] Op. cit. (Gialloreto, 1988), p. 50.

characteristics and marketing is different between the two groups, to such a magnitude that they should not be classified under the same group. Furthermore, the ordinary full-service carrier has enjoyed considerable success but premium-service carriers have all failed, so far.

As Meyer et al., have observed, the cost advantage that many new-entrant carriers have had over the incumbents is not as important as it may seem at first. The reason being that the new-entrant is likely to base its pricing on the fully allocated costs, whereas, the incumbent is more likely to base it on the marginal costs. However, what Meyer does not clearly state is the importance of the incumbent's capacity in a market were a new-entrant appears. If the new-entrant offers a seat at a price of 50 and the incumbent has an average price of 70, the incumbent may be selling, lets say, 10 per cent of its capacity based on marginal pricing of 30. The problem for the new-entrant in this situation is that 10 per cent of the capacity sold at this very low price may be greater than the total capacity provided by the new-entrant in the market. Therefore, the new entrant's pricing strategy falls 'between' at the price of 50 and the airline looses the potential price advantage. One apparent way of preventing this is for the new-entrant to select secondary routes served by a weak carrier where fares are relatively high and capacity low. Therefore, as the new entrant enters the market it gains immediate superiority by offering lower prices and relatively high capacity. Thus, the incumbent will have problems immediately, as further increase in capacity will reduce load factors. Moreover, 'Spiteful' behaviour by the incumbent will not pay unless the incumbent has greater staying power and reduction in fares by the higher cost incumbent, will harm the new-entrant's profitability.

In many industries mergers can lower costs if there are cost economies of scale present, but cost economies of scale do not apply in air transport to any large degree. Nevertheless, mergers and acquisitions became frequent in the deregulated air transport market, as will be discussed in next section.

7.8.2 Mergers

Airline acquisitions and mergers are very costly for any firm in terms of capital and management time. Even though an acquisition deal does not materialise it is a costly endeavour. An example of such adversities was Horizon's unsuccessful attempt to merge with Cascade that was claimed to have cost Horizon $4 million during the process.[322]

Costs involved with bringing together often distinctive company cultures can also drain the new entity. An example of such occurrence was when People Express acquired Frontier, a highly unionised high cost carrier very unlike People Express. Furthermore, an acquisition often brings with it problems in merging different strategies that are costly to change. If we still take the Frontier example, it had a strategy of full service that was not only costly to change in terms of alterations in operations(to no-frills) but also in terms of lost business when passengers used to the full service flocked into the arms of the competition.

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[322] Air Transport World, Horizon refining management to hold northwest domination, October, 1986, p. 113.

Southwest Airlines acquired the full service carrier Muse Air in 1985 and turned it into a separate entity called TranStar but still maintaining its characteristics. The carrier lost money and became a liability on Southwest that lost $9.2m in the first six months of 1987, after 55 quarters of straight profitability.[323] As a result of these losses Southwest dissolved the carrier in 1987.

Mergers are usually justified in terms of reaching new markets, neutralising a competitor or achieving the 'necessary' critical mass in order to become profitable. This aims of the merger are usually fraught with contradictions as the shear increase in problems that are created by a merger sometimes leave the acquirer in a worse situation after the merger. Herbert Kelleher of Southwest opposes the need for large size in order to be competitive:

> **It is said you have to be a certain size to survive these days,.....but we haven't been able to determine what that size is. [Southwest] tries to achieve mass in individual markets rather than on an overall basis,...**[324]

The importance of the already mentioned mergers was first and foremost strategic for the new-entrants involved. The benefit was, however, at large meagre, causing sudden increase in debt and increased vulnerability to failure.

Table 7-9 Acquisitions by New-entrant Airlines[325]

Airline	*Acquisitions*		
Southwest Airlines	Muse Air '85	Morris Air '94	
People Express	Frontier '85	PBA '86	Britt '86
Air Florida	Attempt for Air California		
Air Wisconsin	Mississippi Valey '85		
Braniff II	Florida Express ('87)		
PSA	Attempt for Braniff ('83)		
Midway	Air Florida assets ('84)	Fisher Brothers '87	Eastern assets in Philadelphia '89
America West	Attempt for Eastern Shuttle '89		
Horizon Air	Air Oregon '82	Trans Western '83	Attempt for Cascade '85

In order to throw some light on the meaning of the Frontier, Britt and PBA acquisition for the downfall of People Express a detailed account will follow. One has to have in mind, though, that the acquisition was not the actual cause of People's Express problems that led to its failure, it was rather one of the symptoms.

I. People Express acquired Frontier in 1985 after a relatively short courtship. The carriers financial procedure for acquiring Frontier was by providing $95 million of the $307 million purchase price, while the rest was funded by cash and short-term investments of Frontier and Frontier Holdings.

II. The acquisition of Frontier was done by gaining the banks approval to form a holding company. People Express Airlines the subsidiary then raised $125 million through joint extendible term securities and used $100 million of it to buy Frontier stock through People Express Holdings.

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[323]The Avmark Aviation Economist, Changing fortunes of Dallas star, August 1987, p. 19.

[324]Air Transport World, Southwest Airlines: Different but very much the same, May 1987, p. 51.

[325]Air Transport World, 1980 - 1994.

III. The acquisition of the securities caused considerable uneasiness among People's banks. As a result, People Express made a public offering of Secured Equipment Certificates valued at $115 million.[326] The results were used to pay off the banks that refused the redrawal of a revolving loan after People Express offered to pay it down given that the carrier could redraw in the third quarter of 1986.
IV. People Express acquired both Britt and PBA. The price for Britt was not disclosed but could have been in the vicinity of $25 million according to a SEC filing for $35 million public offering that was supposed to be loaned to People Express to restore funds, with the exception of $6.5 million, used for other purposes. PBA was acquired for $10 million.[327]

The mergers undertaken as the chronological account above shows, limited unnecessarily People Express financial flexibility and increased the carrier's perceived risk in the eyes of its financiers and customers. Soon afterwards People Express disappeared from the scene like so many new-entrants before as well as after.

7.9 Conclusion

Air transport has been first and foremost market-share driven, which explains the reason for the low profitability and the intense rivalry. If Porter's Competition Model is examined, one finds that the threat of new-entrance has been minimised by the development of competitive tools by the incumbents, the bargaining power of suppliers and buyers is little and the threat of substitutes is small. Although the four forces mentioned in the model do not explain the intense rivalry in air transport, other factors like; excess capacity, commodity nature of the product and the importance placed on market-share, do.

The learning curve as such is not the main barrier to entry in air transport markets. Of greater importance is entry strategies and the identification of a niche that can effectively be protected.

Growth plays a major importance in the competition behaviour of airlines due to the tendency to extract growth, hence, market-share from the competitors. This characteristic leads to an intense rivalry in markets.

During deregulation incumbents have learned effectively to compete with low fare, low cost new-entrants by price matching or undercutting for limited capacity only, optimised by sophisticated yield management systems. The only way for a new-entrant to compete is then apparently to form an alliance with the incumbent or to enter a niche market that is defensible. Both of these options are problemsome for the new-entrant as the cooperation with the incumbent is potentially dangerous for the new-entrant and to find a defensible niche market is extremely hard.

The experience shows that new-entrants can operate without commercial CRS systems. This has been proven by Southwest, People Express and Morris Air. The problem starts when peaks occur in demand and the system can not handle the incoming calls. In such cases a CRS system accessible by TA's would preserve the airline's good will.

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[326] Lloyd's Aviation Economist, Pushing Back the Final Frontier, May 1986, pp. 23-24.

[327] Airline Business, Time for Caution, July 1986, p.23.

The risks associated with entry are different depending on the background of the new-entrant, being highest for a start-up carrier and the lowest for an intrastate based new-entrant.

Growth plays a major role in new-entrants' strategy. Many early new-entrants strived to maximise their size in the hope of becoming more competitive. This strategy was not proven to be useful. Recent new-entrants have rather tried to identify a niche market and are more geared towards surviving, deriving lessons from the history of new-entrant airlines in the deregulated market. Growth can come from two sources growth in demand from external sources or from strategic moves that transfer customers from one carrier to another. The latter source of growth is bound to increase rivalry in the market during stagnation or declining demand.

Customers do influence competition, although, their role is sometimes overlooked or ignored by the airlines. A model of Customer Reaction Contours is presented in order to explain how airlines ignoring quality will lose market-share as a competitor with superior relative quality enters the market at a similar price.

The Henderson's 'market equilibrium disruption' analogy is used in order to explain a market's tendency to enter a condition of 'price war.' It was found that in order to create a reasonable stability niche marketing has to be possible. It is concluded that it is not straightforward for an airline to create niches, nor to protect such niches if found.

The primary goal of any new-entrant formed after 1986 is plainly to 'survive'.

Researchers have stated that new-entrants should be concerned with differentiation rather than with capacity in the market. The problem with that is, however, the limited ability of a new-entrant to differentiate in any meaningful way.

There are five basic entry strategies mentioned: (i) at lower-cost; (ii) at lower fare; (iii) a niche market; (iv) with superior quality; and (v) with superior service. The combination of the first four seems to be the common trait of 'successful' new-entrants.

The competition intensity apparently increases as more entry segments are added. Sequenced entry where the financial basis of the carrier is build before the next entry segment is added makes the carrier better prepared to fight the increased competition intensity associated with each added segment.

There are four general route strategies available to airlines. Two are most common after deregulation 'hubbing' and 'direct service'. The only remaining 'successful' new-entrants' are direct service carriers.

A strategy of short-haul, non-hub, short-haul, no-frills service, seems to work well if the carrier sticks to the basic underlying philosophy. America West and People Express changed their successful basic philosophy and failed, while the successful Southwest has not done so in any marking way.

New-entrants have usually selected two pilot, fuel efficient, short-haul aircraft. They have also tried to maintain a homogenous fleet in order to minimise maintenance and

training costs. In short, fleet strategy has been geared towards cost savings first and foremost.

New-entrants that have become feeding carriers for the majors have in most cases lost their identity and eventually been acquired by the incumbent. The change in the CRS regulation harmed the ability of feeder carriers to stay independent, thus, lessening their survival chances.

New-entrants have found it difficult to cash-in on their lower cost structure due to the incumbents sophisticated yield management systems. The simple fare system is, nevertheless, in full swing at the successful carrier Southwest. Thus, it is apparent that the simple fare strategy is route dependent (short-haul, secondary markets) rather than unworkable as frequently cited by those looking at People's Express collapse.

The new-entrants have selected three basic service strategies: (i) no-frills; (ii) full-frills; and (iii) premium service. The last type of service has not worked for the new-entrants in any form. The other two concepts have worked better with Southwest being an example of the former and Midwest Express of the latter.

With regard to market penetration the new-entrants have had to decide whether to participate in a CRS and emphasise TA's. The low-cost new-entrants tried to circumvent both of these options by setting up telephone booking systems. Such systems harmed the carriers' image and were inadequate as the airlines got larger.

New-entrants targeting the business segment have been at a disadvantage due to the majors' FFP's that have secured the loyalty of business passengers. New-entrants' programs are usually smaller and less appealing in terms of exotic destinations to cash-in rewards. Furthermore, the NE's route systems are more limited making it harder for the frequent flyer to build up mileage unless he travels to few destinations laying within the NE's system. In order to account for this some of the new-entrants have entered into marketing agreements with other larger carriers where the two FFP's are joined.

Market-share is important for new-entrants, especially, to gain a dominant share at a niche airport near a large catchment area or to gain dominant route share on secondary routes.

The low-cost new-entrants have emphasised prices in their advertising, making image building troublesome. Two new-entrants, Southwest and Muse made fun a part of their image. This seems to work well for the new-entrants due to the reluctance of the majors' to follow suit. The early new-entrants got the image of being the people saviours from high prices. This image soon changed into an image of poor quality and little dependability as the new-entrants started to exit unprofitable markets. The free media coverage many new-entrants enjoyed at first disappeared, making entry costs higher and community exposure lower, especially when large markets were entered.

Branding is concluded to be little used by airlines, although, names for business classes have been adopted. The sameness and limited differentiation possibilities

make branding in air transport problematic. A change in basic strategy is the cause of 'brand' conflict, that occurred at People Express when it attempted to gather for business passengers.

Most new-entrants decided to offer lower fares than prevailed in order to exploit lower cost structure than the incumbents had. Simplicity in fare-structure and non-participation in CRS's lowered costs and directed the passenger away from the travel agents that further reduced costs. Most new-entrants redirected their strategy towards using the CRS's and travel agents as their size got larger and the craving for further growth overpowered their fundamental operating philosophies. The simple fare-structures worked well until American and other incumbent airlines initiated a highly efficient yield management systems that abled them to manage their capacity in order to under-cut or match the new-entrant's fares for limited capacity without lowering yields as much as before on new-entrant's competition routes.

Large market-share at large airports, is linked to new-entrant's longevity. This is especially important in terms of governing a secondary airport to a large city.

New-entrants enjoyed free media coverage in the early days that reduced their entry costs in new markets. As deregulation progressed they had to spend more to make their presence felt. This was not as much of a problem in small cities but was a major problem when the new-entrant began operations to large cities dominated by the incumbents. New-entrants had very little to offer in primary markets besides fares. As a result they have not fared well in such markets at all, due to the incumbent's hard felt presence.

Code sharing has been highly troublesome for the regional based new-entrants due to their loss of identity and control over strategy. Most code-sharing new-entrants fail or are acquired by the incumbent partner. This is due to the 'big customer' problem, because if the incumbent partner severs the relationship the feeder losses the majority of its customers overnight and probably fails as a result.

The effect of the merger strategy is discussed with detailed reference to the People Express case. The conclusion is that mergers are highly risky endeavours for new-entrants and probably never successful unless the acquired airline is much smaller and offering similar product. It is concluded that internal sustainable growth, based on a long-term plan, is superior to the merger strategy.

In order to give a perspective of new-entrants in Europe for comparison purposes, the following chapter was included.

8. Air Transport Liberalisation in The European Union

8.1 Introduction

In the following chapter the new term European Union (EU) will be used exclusively instead of European Community (EC), although many of the directives, agreements and events discussed took place before the creation of the EU.

Although the thesis is primarily concerned with U.S. new-entrants, it will make inferences from the application of findings to European carriers.

The chapter will cover the legal developments that led to liberalisation in Europe and its implication for new entry in air transport markets.

8.2 The Move Towards Liberalisation in Europe

8.2.1 Introduction

Competition within Europe has been characterised by monopoly, duopoly and collusion of carriers in order to minimise the 'harmful' effect of competition both in the domestic and international markets. Furthermore due to the very high cost structure of European airlines and relaxed attitude to market, development, charter carriers more and less govern the low-end of the air transport market while the scheduled-carriers emphasise the high yield business passenger. This environment has created less convenient and less efficient air transportation system for the public, especially, if one looks to the United States for comparison.

The most striking and perhaps the greatest driving force of the European liberalisation is the difference in fares between European and US carriers. Fares in Europe have been comparatively much higher for scheduled operations than in the United States, especially after deregulation.

U.S. deregulation has shown that low fares increase market size through the redirection of travellers from the private car, railways, busses and even acting as a stimulant to take a trip that otherwise would not have been taken. The potential of deregulation in Europe is therefore, first and foremost a public issue. The wider impact of deregulation in Europe will be an increase in trade through increase in tourism and business travel and the facilitation of the unification of the European Union. Such change may, however, cause a major dislocation in terms of other transportation modes like passenger rail.

8.2.2 The Treaty of Rome

The Treaty of Rome, on which the European Union (EU) is founded, is designed to prevent trade distortions within the community and to ensure the freedom to supply services within the EU. In fact, the third article of that treaty declares that the EU should ensure that competition is not being distorted. This facility had not been effected within the Community for air transport although other industries had been subject to increased control by the Community since 1962. Until the first liberalisation Package,[328] air transport services between Member States had been regulated by restrictive bilateral agreements that controlled fares and capacity.

The first proposals of a common air transport policy appeared in 1979 as a memorandum that resulted in a debate that led to the adoption of legislation regarding co-operation between Member States and the provision for inter-regional air services. A further memorandum was presented in 1984 on a common air transport policy. In this memorandum it was proposed to split the reform into air transport between Member States and between Member States and non-EU countries, with emphasis on the former to begin with. The result facilitated the flexibility of the existing intra-EU bilateral agreement and increased competition.

It was, however, the 'Nouvelles Frontieres' case before the European Court of Justice in 1986 that pushed the competition articles into the forefront. The case involved a Travel Agency's alleged infringement of the French Civil Aviation Code by selling airline tickets below the government approved tariff. The major test of the case was whether, the Government's approval mechanism was in breach of Articles 85 and 86.[329] The Court's findings confirmed the applicability of the Articles to air transport and specified their implementation, as Articles 88 and 89 had provided for the exclusion of air transport in the implementation of Articles 85 and 86.

The court's findings were as follows:

> (i) The competition rules - particularly Articles 85 to 90 - do apply to air transport. The existence of bilateral and multilateral air transport agreements does not preclude a national court from considering possible breaches of those rules.
> (ii) In the absence of a council regulation under Article 87 to determine how the rules are to be applied, the appropriate 'authorities' in individual states have powers under Article 88 to rule on the admissibility of agreements in relation to the competition rules and the Commission has powers under Article 89 to take steps 'to remedy the situation'.
> (iii) Tariff agreements (and, by implication, other actions of airlines potentially infringing Articles 85 and 86) are not contrary at this time to the competition rules simply by their existence. They may, however, be declared contrary to (or in conformity with) the rules by specific action of individual states or by the commission.

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[328] Liberalisation was presented by the Commission in so called 'packages', but they were three.

[329] "Article 85, which prohibits and makes unenforceable anti competitive agreements, decisions and concerted practices which eliminate, reduce or distort competition unless specific exemptions have been granted; Article 86, which prohibits an abuse of a dominant position within the Community or any part of it so as to affect trade between EEC member States.", Doganis, Rigas, Flying Off Course, Routledge, 2nd ed. 1991, p. 84.

> (iv) If states or the Commission decide that certain airline actions (such as tariff agreements) are contrary to the competition rules, states cannot subsequently approve such actions under national, bilateral or multilateral air transport arrangements.[330]

These findings increased the possibility of the Member States breaching the Competition Rules and in an attempt to solve that puzzle the Commission made a proposal to liberalise the intra-community air transport.

8.2.3 The Gradual Liberalisation Process

The liberalisation of the European Union's air transport was in three stages labelled 'packages'. The first Package agreed by the Council of Ministers in September 1987 took effect on January 1 1988; the second Package agreed in July 1989 took effect in June 1990; and the third Package agreed in June 1992 took effect on January 1, 1993.

The first Package allowed price fixing and capacity sharing but according to certain procedures. The main aspects of the rules were four: (i) A procedure for applying Article 85 and 86 to air transport; (ii) relaxation of fare control; (iii) relaxation of route access limitations; and (iv) increased freedom with regard to capacity sharing.

The second Package was aimed at further enhancement of competition by encouragement of fare reductions by opening up markets, increasing freedom to alter fares and further provisions for the application of the competition rules.

In Table -8-1 the liberalisation development is shown by comparing the main features of each Package.

The third Package had provisions regarding licensing of airlines, air fares and cabotage. After the enactment of the regulation, carriers have to fulfil EU standards that are uniform for all Member States. Regulation governing air fares were relaxed to a large extent, leaving only few safeguards relating to a Member State's freedom to require fares between Member States to be filed with the authorities at least one working day before enactment and domestic fares to be filed not more than one month before enactment. Furthermore, a Member State was given the authority to remove excessively high fares given certain safeguards for the profitability of the carrier and excessively low fares when the fares are deemed to deviate from seasonal fluctuations and cause serious losses among all carriers involved. The Commission has to be notified on such fare withdrawal fourteen days before proposed enactment. The Commission may investigate the withdrawal upon request from a member state or any other legitimate party.

Full domestic cabotage was limited until 1 April 1997, but limited cabotage was allowed. A Member State has to allow cabotage if such service is an extension to or from the state of registration, also if the carrier does not use more than 50 percent of its seasonal seating capacity on the cabotage route. Furthermore, if a carrier operating aircraft of less than 80 seats on a route with a capacity of less than 30.000

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[330] Weatcroft, Stephen and Lipman, Geoffrey, Air Transport in a Competitive European Market: Problems, prospects and strategies, The Economist Publications Ltd., 1986, pp. 57-58.

seats per year, the concerning Member State can refuse to grant permission for an other carrier to operate on the route for up to two years, unless the petitioning carrier intends to operate an aircraft with 80 seats or less. Moreover, the Member States can regulate the distribution of traffic between airports within an airport system given that it does not lead to discrimination among carriers. In the case of environmental or congestion problem it is allowed to impose conditions, limit or refuse an airline with traffic rights to exercise that right given that competition is not distorted. This limitation may not last for more than three years and can be appealed to the Commission.

Table -8-1 Summary of the EU Liberalisation Process

Regulatory Area	*1st Package*[331]	*2nd Package*[332]	*3d Package*[333]
Market access	Traffic rights created between regional airports and main airports (with exceptions)		Unrestricted traffic rights between States but limitation of cabotage rights on domestic routes to 50% of capacity.
	States can designate a second carrier on intra-Community routes when traffic levels pass certain levels	Further relaxation of multiple designation thresholds.	Provision for States to limit access to a route to one carrier for a period of up to three years, when capacity is under 30.000 seats per year
	Fifth freedom rights granted for airlines on routes between two other Community States (for 30% of seats on the route)		Full fifth freedom rights for airlines between two other Community States
Capacity	Up to 55% share by one country's airline(s) allowed 1988-1989 and up to 60% in 1990, i.e. 50:50 sharing abandoned.	Maximum capacity share by airlines of one country, to be increased up to 75% over 2 year period.	Unlimited capacity on interstate routes. Cabotage rights for up to 50% of seasonal capacity on extension service from, or as a preliminary of a service to the State of registration.
Fares	Governments must agree fares if they reflect costs	Any fare which is set within the conditions and scope of one of the zones is to be automatically approved by States	Any fare which is decided by the carrier is to be automatically approved by states
	Zones for discount fares within which the airlines are free to set fares given specific conditions	Additional third zone.	
		Conditions applicable to zones changed, to enable airlines greater freedom to charge fares of their choosing	

Although, the third package has freed the air transport market within the EU substantially, it has not reduced fully the barriers to entry for new or expanding smaller independent airlines. The existing barriers are limited access to congested airports, state aid to unprofitable flag carriers and alliances of the incumbents.

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[331] Op. cit., (Doganis), p. 88. For reference to the actual regulation see EC Regulation 3975/87 and new procedure to approve fares, Council Directive 87/601/87.

[332] Briggs, Martin, The English Summer of 1990 - Further Progress Towards Deregulation of the Aviation and Travel Industry, Air Law, Vol. 16, No. 2, 1991, pp. 52-55.

[333] Council Regulation on fares and rates for air services, EEC June 1992.

8.2.4 Liberalised Bilaterals

In 1990 the Commission introduced a proposal to transfer negotiations of air transport agreements with third countries to itself by 1993. The proposal was then amended to transfer the enactment date from 1993 until 1998. The proposal was seen as a step towards total integration of the EU's air transportation market and strengthening of the Commission's negotiating position in order to preserve unity of member states with regard to air transport policy.

In March 1993 the Council rejected the proposal on the basis of Article 84(2) of the EU treaty. As a result, the council decided that member states should keep each other informed of negotiations with third countries and to form a panel of experts from the commission and the member states, who would have the following function: (i) Exchange information and to consult each other on relations with third countries; (ii) study areas of potential conflict of interests among Member States and possible infringement of EU law; and (iii) identify areas of common interest among Member States with a view of having Community negotiations authorised by the council on a case by case basis.

Although the decision does not provide the community with direct negotiating power, member states will have to seek permission from the Council of Ministers when entering negotiations of air transport agreements. The powers of the council rest with the fact that it can block the agreement by majority decision based on violation of EU's interests. As a result of such blockage the Commission can negotiate on behalf of the Union. One of the reasons for such provision was the US-Netherlands bilateral, that was important for the United States in order to spread freedom in the air and open up growth opportunities for U.S. carriers. In fact the United States Government has introduced liberated bilaterals by regulation as section 1102 of the Federal Aviation Act states that U.S. negotiators of bilateral agreements should pursue an increase in the number of non-stop United States gateway cities and opportunities for carriers of foreign countries to increase their access to United States points. The US negotiators have, through liberalised bilateral agreements pursued this aim and reached an agreement with the Netherlands that among other no less important factors led the European Union to propose that it should gain an uniform ability to negotiate bilaterals on behalf of all Member States.

The U.S. - Netherlands bilateral has the following main provisions: (i) Freedom to operate to any destination within the USA and vice-versa; (ii) flexible fare mechanism; (iii) access, capacity and frequency unrestricted; (iv) unrestricted code-sharing arrangements; (v) access to CRS's on a non-discriminatory basis; (vi) freedom to operate own ground-handling systems at overseas ports; and (vii) freedom to transfer earnings.

The problem with the bilateral in this form between one EU country and the United States is that the Netherlands are not providing many viable ports, except Amsterdam, because of the country's small size. The United States are on the other hand, a huge market with many potential ports for KLM Dutch Airlines. Such bilateral would of course be a greater concession for other larger countries like Germany, France and Great Britain. Thus, the Commission has felt strong urge to

gain negotiating powers for the EU as a whole, in order to prevent clashes between Member States as a result of such an agreement. It is, however, likely that eventually the bilateral between the US and EU Member States will be deregulated. Cabotage is, however, an issue that must be resolved as many US airlines hold fifth freedom rights within the EU, but no such rights prevail within the United States for European carriers. Therefore, it is important for the EU to negotiate with the United States as one block, either to remove US air carrier fifth freedom rights within the Community or gain cabotage rights in the US domestic market.

The importance of this development of bilateral negotiations and possible EU wide negotiating powers, for new-entrants, is that it will allow entrance on international routes without most of the traditional restrictions. Moreover, as the European market is smaller in terms of geographical area and more developed in terms of public ground-transport utilisation than the US, liberalisation of bilaterals has greater meaning for new-entrants in Europe than for new-entrants in the strong US domestic market. The drawbacks are, however, the size and low cost structure of US carriers that would certainly cause major problems for incumbent European carriers if free to enter.

8.2.5 The European Economic Area (EEA)

The member States of the European Economic Area[334] became part of most of the provisions in the first and second 'package' on 1 January, 1994. Sweden and Norway, who are members of the EEA, had already liberalised by adopting the provisions of the first two packages by special agreement with the EU in 1992.[335] When the EEA took effect on January 1, 1994 the EEA agreement superseded the special agreement.

The main provisions included in the EEA agreement are on fares, market access, capacity and airfreight. The agreement is important as it extends the radius of the EU route network. This may be important for small airlines extending their service or new airlines as the fares within the Scandinavian countries have tended to be high due to SAS's exclusive rights on international routes from Denmark, Sweden and Norway, although some competition has occurred in the domestic market of these countries by airlines like Braathens SAFE, Maersk and Swedair, etc. With liberalisation these airlines have been able to extend their services.

With the adoption of the third package in the EEA countries on July 1, 1994 any European carrier can take advantage of viable routes under the provisions of the package.

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[334]The Member States are the European Community Member States, the Republic of Austria, the Republic of Finland, the Republic of Iceland, the Principality of Liechtenstein, the Kingdom of Norway and the Kingdom of Sweden. The Swiss Confederation rejected the EEA in a referendum and will not become part of the agreement. See EC document, SEC (92) 814 final.

[335]Council Decision of 22 June, 1992 (92/384/EEC), concerning the conclusion of an agreement between the European Economic Community, the Kingdom of Norway and the Kingdom of Sweden on civil aviation.

All the former EFTA countries except Iceland and Switzerland have applied for membership to the EU. As a result, they will be fully integrated into the Union. Switzerland, that rejected the EEA in a referendum, is pursuing bilateral negotiations, while Iceland, that belongs to the EEA but has not applied for EU membership, has already taken up most of the provisions in the third package in accordance with the EEA agreement.

8.3 Industry Structure

8.3.1 Mergers

Strategies of European airlines have been coloured by the US deregulation experience. For example, the assumption that size is important is directly adopted by the European carriers leading to frequent acquisitions like those of Air France of UTA that gave full control over Air Inter; British Airway's acquisition of British Caledonian and later of Dan Air along with a 49.9 percent stake in TAT; and SAS's stake in British Midland.

Mergers are occurring just like in the United States, thus, creating a more concentrated industry. The reason is, looking to the US example, that the regulator has very little alternative but to accept a merger proposal if one of the carriers is facing bankruptcy. This is due to the fact that if the carrier is allowed to go bankrupt the social consequences are much greater than when the carrier is acquired by a competitor, allowing a portion or all of the employees to keep their jobs. As a result, the Commission will very likely allow mergers in the future in order to minimise the social disruption of deregulation as competition becomes more intense. In merger cases the Commission has usually approved but forced the carriers to give up a number of routes and/or slots at congested airports. When the Commission agreed on an alliance between Sabena World Airways (SWA) and Air France, where the latter took a 38.6 percent stake, it required the two airlines to give up some European and African routes where the two carriers were considered to gain dominant position following their merger. Furthermore, a rule was implemented that prevents the two carriers to hold more than 75 percent of the slots at Brussels in any one hour period, or more than 65 percent in any consecutive two hour period.

Regulation on 'block exemptions' that took effect on 1 July, 1993, will define what co-operation between the EU airlines is allowed in the deregulated market. There has been in force a block excemption that allows airlines to operate joint CRS systems given that the system is open to all interested airline parties. However, the basic purpose of the block excemption is to allow co-operation where there is scope to lower costs and improve service but limit such co-operation where consumer benefit is better safeguarded by effective competition.[336]

The Commission approved the merger of Dan Air and British Airways on the grounds that the combined market share of the two airlines on the route between London Gatwick and Brussels was below the set threshold for merger regulation, that

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[336]Miert, Van, European Commission Press Release: IP/93/521, June 25, 1993.

the two airports were open to new-entrants and that no dominant position would be created as a result.

The Commission has extensive powers to take action against companies suspected of abusing dominant market position. This instrument is of major importance and has been used in the Commission's ruling in the BA/BCal merger. The Commission, empowered by Articles 85 and 86, exercised its powers in the merger, when it forced BA to give up number of routes and runway slots at London's Gatwick airport.[337] This move opened up slots, for example, for Virgin Atlantic Airways and Air Europe, allowing the latter to launch up to 15 scheduled routes from Gatwick. The commission had to ensure that if that merger was to take place it would not limit the ability of other carriers to access the routes shared by the two merged carriers. The merger became in fact the Commission's test as to its authority to regulate the air transport industry, following the conclusion of the 'Nouvelle Frontiers' case. The merger was authorised by the Commission on the grounds of conditions, some of which were for BA to give up 8 intra-community British Caledonian routes to other air carriers (Paris, Brussels, Nice, Athens, Copenhagen, Hamburg, Rome and Stuttgart), limitations on the use of slots at Gatwick airport and restriction on the extension of services at Heathrow airport.[338] BA was free to reapply for the routes surrendered but further concessions limited this right and BA agreed not to reapply for Hamburg, Stuttgart and Rome for service commencing earlier than in April 1991. Amsterdam and Frankfurt were excluded from further concessions. BA accepted, however, that Milan should be given priority in terms of new service. In addition to this BA agreed to place a four year 25 percent ceiling on the slots available to the merged airline at Gatwick airport and not to transfer services from Gatwick to Heathrow 'in a way that would be detrimental to the interests of consumers or competition'.[339]

The Air France, UTA and Air Inter merger was also agreed on by the Commission on the grounds of concessions in order to provide for some competition following the merger. In order to do this companies that were not part of the Air France group could operate new services both on domestic and international routes within and outside the Community. Air France was then to sell its 35 percent shareholding in the fourth largest French carrier TAT in order to facilitate its development into an independent carrier. However, TAT has now been acquired by BA and cannot be considered to be an independent carrier as BA has 49.9% interest and an option to acquire the remaining part prior to April 1998. Therefore, it can be alleged that the largest European air carriers are dividing the smaller competitors between them without any serious blockage on behalf of the EU. The view of Ben Van Houtte could if adopted, be a more serious blockage of complete dominance of few European carriers:

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[337]Op. cit. (Doganis), p. 85.

[338]Owen Richard and Dynes, Michael, The Times Guide to 1992: Britain in a Europe Without Frontiers, Times Books, 2nd ed 1990, p. 132.

[339]Commission of the European Communities, Press release 9 March, 1988. European Commission Announces Major New Undertakings By British Airways on Its Merger With British Caledonian Aimed At Safeguarding Airline Competition, p. 3.

The function of competition review in airline mergers cases appears to be twofold. First, it must ensure that the restructuring process does not go so far as to jeopardise the competitive structure of the Community airline industry and lead to unacceptably high levels of concentration. Second, care must be taken to avoid dominance of important individual markets - routes, airports or catchment areas of airports - by single powerful airline.[340]

8.3.2 Alliances

Intra-European air carrier alliances are formed for three reasons primarily; first to protect present market-share and prevent uncontrolled market entry of competitors; second, to gain access to foreign domestic markets; and thirdly to secure feed to 'hubs'.

Table 8-2 Alliances Between Regionals and Major Carriers

European Major	*Regional Affiliate*	*Remarks*
Air France	Air Inter(36.5%)	Planning regional group under Europa Air title
	UTA(84.5%)	
	Corse Mediterranee, Air Littoral, Brit Air	
	Sabena(38%), Belgium	
	Austrian(1.5%), Austria	
	Euro Berlin(51%)	
Alitalia	ATI, Avianova (50%)	
British Airways	Deutsche BA (49%)	
	Brymon Aviation (100%), UK	Acquired Maersk Air's stake in 1993, when Birmingham European was demerged.
	TAT European (49%)	Expected to increase equity to [100% in 1998.]
	CityFlyer Express, UK	First BA Express brand airline.
Aer Lingus	Aer Lingus Commuter (100%)	Plans low-cost subsidiary Aer Lingus Express.
Austrian Airlines	Austrian Air Services (100%)	Qualiflyer member. Will partner Lufthansa or Alcazar.
	Rheintalflug	
Finnair	Karair, Finnaviation (98)	Regionals plan to merge in 1994.
Iberia	Binter Canarias (100%)	Operate independently but wholly by Iberia.
	Binter Mediterranee (100%)	
Icelandair	East Air(21%), North Air(35%)	Plans to segregate domestic operations into separate company.
KLM	KLM City Hopper(100%)	Air UK has significantly increased role into Schiphol.
	Transavia (85%)	
	Air UK (15%), UK	
Lufthansa	Lufthansa CityLine (100%)	Expanding routes.
	Contact Air, UK	
	Cimber Air, Denmark	First UK codeshare partner.
	Business Air (38%), UK	
	Eurowings, Germany	
	Luxair(15%), Luxembourgh	
	Lauda Air (49%), Austria	
	Euro Berlin (49%), Germany	
Maersk Air	Maersk Air UK	Former Brymon partner to BA. Regional based in Birmingham.
Sabena	Cimber Air, Denmark, SAS, Scandinavia, Delta Air Transport, Belgium, DAT Air Wallonie	Partner on Dan-air. Sabena is 39% owned by Air France
SAS	Swedair, Sweden, Linjeflyg, Sweden, Airlines of Britain Group (40%), UK	
Swissair	Crossair (52%), Switzerland	Crossair taking over more Swissair routes.
	Business Air (38%), UK	

Source: The Avmark Aviation Economist, October 1993, p. 13.

[340] Houtte, Ben Van, Community Competition Law in the Air Transport Sector (I): A Survey of the First Five Years, Air & Space Law, Vol. 18, No. 2, 1993, p. 69.

In view of the influence of the US example it is clear that such anti-competitive schemes as mentioned in the first reason can only last in the short-term as full deregulation and privatisation of airlines will turn the market forces loose. The second reason will, however, be extremely important in order to gain market access sooner than now possible under the present competition regulation. The latter method has been successfully applied by BA with the aquisition of TAT that allows backdoor access to the French domestic market. The third reason is extremely important as European carriers start to operate in other EU countries than their own.

One other reason for the popularity of alliances between carriers rather than outright mergers, like occurred in the United States, is the political benefit of being a nationally identified carrier, that makes mergers of flag carriers inconceivable until capital injections and state ownership will be eliminated.

8.3.3 Charters

Charters have a strong foothold in the European leisure market, an effective blockage to the schedules entering effectively on a number of intra-European holiday destinations. In 1984 charters had 48.6 percent of the total intra-European international and domestic passenger RPK's, while the Association of European Airlines (AEA) scheduled carriers had 31.6 percent, other scheduled carriers had 3.2 percent and AEA carriers had 18.6 percent charter traffic. That means a stunning 65.2 percent of total intra-European RPK's produced, were on charters.[341]

Charters as new-entrants have nor fared well, although, Air Europe enjoyed fast growth and had become a substantial force in European air transport with its mixed charter/scheduled operations. The same goes for Dan-Air, although, in a less spectacular fashion. Other large charter carriers have entered scheduled operations but on a very small scale. Britannia still operates one scheduled route only after having axed its intentions to enter scheduled operations on a larger scale.

Due to the high cost structure that characterises most European scheduled carriers there has been increased pressure to mount effective cost cutting strategies. Furthermore, the important international sector will become increasingly liberalised, because of the U.S. liberal bilateral policy. In view of this it is clear that the charter market will be under increasing threat as scheduled fares approach those of the charters. Furthermore, travel habits are changing in the direction of increased independence in travel behaviour, thus, reducing the traveller's dependence on ready made package tours. Therefore charter airlines will either have to scale down their operations in the future or what is more likely, maintain their market share by entering scheduled operations. In view of this it is conceivable that the European charters will eventually become the most effective new-entrants and competition within the European air transport market will shift towards much tougher price competition.

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[341] The Avmark Aviation Economist, 'Charter versus scheduled in a liberalised Europe', October, 1986,p. 20. In 1991 charters had 50 percent of the total intra-European international and domestic passenger haulage, while the Association of European Airlines (AEA) scheduled carriers had 37 percent and other scheduled carriers 13 percent.

8.3.4 Degree of Monopoly

Of the 50 most frequent international intra-EU routes in July 1993, 40 percent had three or more carriers, while 58 percent had two carriers and one route was a monopoly route. This is reversed when it comes to domestic routes as 18 percent had three or more carriers, while 36 percent had two carriers but 46 percent were monopoly routes.[342]

The most striking feature in the table is the large increase of international scheduled routes entered by the charter carrier LTU, who has entered 61 routes, with low frequency of only 9 round trips per month on the average. This indicates that the carrier is acquiring as many routes as possible in a short period of time. This is a similar strategy as was adopted by Braniff in the United States with dear consequences. Another German carrier Condor has adopted a similar strategy on a smaller scale though, entering 11 routes with average frequency of 11 round trips per month.

Of the flag carriers Lufthansa has the largest number of monopoly routes due to lack of competition out of Germany, but two of the early challengers, German Wings and Aero Lloyd, soon went out of business. This will of course change if Condor and LTU can mount effective competition.

Table 8-3 EC Airlines on International Intra-Community Routes - July 1993

Airline	*Country*	*Routes*	*Monopoly Routes*	*% Monopoly Routes*	*Round Trips per Month*	*Average RTs per Month per Route*
Flags						
Lufthansa	Germany	127	49	39	5215	41
KLM	Netherlands	45	24	53	3724	83
British Airways	UK	73	22	30	5557	76
TAP	Portugal	41	19	46	891	22
Luxair	Luxembourg	23	19	83	866	38
Air France	France	64	16	25	4101	64
Sabena	Belgium	40	16	40	2229	56
Aer Lingus	Irish Rep.	28	16	57	2161	77
Iberia	Spain	45	11	24	2158	48
Olympic	Greece	27	10	37	555	21
SAS	Scandinavia	28	6	21	1277	46
Alitalia	Italy	48	2	4	2498	52
Independents						
LTU	Germany	61	43	70	573	9
Air UK	UK	17	9	53	1151	68
Air Littoral	France	8	8	100	198	25
Meridiana	Italy	12	8	67	294	25
TAT	France	7	6	86	43	6
Viva Air	Spain	15	4	27	387	26
British Midland	UK	10	2	20	1388	139
Condor	Germany	11	2	18	56	5
Ryanair	Irish Rep.	5	1	20	553	111
ContiFlug	Germany	1	1	100	14	14
Business Air	UK	1	1	100	22	22
Virgin Atlantic	UK	1	0	0	31	31

Source: C.A.A.' Airline Competition in The Single European Market', November 1993, p. 120.

In the European Union States there are 763 domestic city pairs. The largest countries take of course the highest proportion of these routes with the exception of

[342]Op. cit.(CAA-CAP 623), pp. 122 and 127.

UK that has the second largest number of domestic routes. Of the total number of intra-EU domestic routes 91 percent are monopolies, 7 percent duopolies and 2 percent are operated by two or more carriers.[343] Due to alliances and equity stakes of carriers effective domestic competition is even less than the numbers indicate in Table 8-4.

It is striking how a large percentage of European airlines' routes are monopoly routes, both in the case of independents and flags. This indicates how well regulation has prevented competition and divided routes among carriers in each country. Furthermore, after liberalisation the change in the direction of competition has been slow to materialize. First and foremost, due to the close ties of independents with the flags and the reluctance of aviation authorities in many important EU countries to take up a pro-competition stand.

Table 8-4 Selected EC Airlines on Domestic Routes - July 1993

Airline	*Country*	*Routes*	*Monopoly Routes*	*% Monopoly Routes*	*Round Trips per Month*	*Average RTs per Month per Route*
Flags						
Olympic	Greece	52	52	100	3379	65
Iberia	Spain	32	29	91	3816	119
Lufthansa	Germany	53	28	53	7490	141
Alitalia	Italy	19	14	74	2270	119
British Airways	UK	30	12	40	3643	121
TAP	Portugal	11	8	73	861	78
Aer Lingus	Irish Rep.	6	6	100	395	66
KLM	Netherlands	5	4	80	343	69
SAS	Scandinavia	4	3	75	539	135
Luxair	Luxembourg	1	1	100	62	62
Air France	France	3	0	0	251	84
Sabena	Belgium	0	0	0	0	0
Independents						
TAT	France	42	40	95	1543	37
Meridiana	Italy	26	22	85	1366	53
Air Littoral	France	21	21	100	794	38
Air UK	UK	25	13	52	1458	58
British Midland	UK	16	9	56	1516	95
Business Air	UK	6	4	67	305	51
LTU	Germany	0	0	0	0	0
Viva Air	Spain	0	0	0	0	0
Condor	Germany	0	0	0	0	0
Ryanair	Irish Rep.	0	0	0	0	0
ContiFlug	Germany	0	0	0	0	0
Virgin Atlantic	UK	0	0	0	0	0

Source: CAA, 'Airline Competition in The Single European Market', November 1993, p. 128.

8.3.5 Fifth Freedom and Cabotage Rights

The third package allowed cabotage rights to be refused on the basis of other convenient transportation modes being readily available.

The Italian authorities have utilised the clause to block Lufthansa's petition to serve on the Naples - Palermo route. Lufthansa gained, however, rights to serve Frankfurt - Genoa - Naples and Frankfurt - Rome - Bari but exited due to low yields on the

[343] Op. cit. (CAA CAP 623), pp. 125-126.

cabotage part of the routes. Furthermore, Air France ran into difficulties when it attempted to gain route rights between Turin and Bari on a flights originating in Paris.

The refusal was based on a clause in the third package that grants local authorities the right to refuse route rights where an airline has been granted exclusive rights to a domestic route before January 1, 1993, given that there are no other forms of transport readily available. In spite of this, 12 carriers had taken advantage of the third package provisions in different forms, by February 1994.

Table 8-5 European Airlines' Utilisation of the Provisions in the Third Package by February 1, 1994

Airline	*5th freedom*	*6th freedom*	*7th freedom*	*8th freedom*
Air France	(Lyon)-Toulouse-Madrid-Lisbon			
Alitalia	(Milan)-Brussels-Dublin (Milan)-Frankfurt-Oslo	Hamburg-(Milan)-Barcelona		(Rome)-Barcelona-Valencia (Milan)-Barcelona-Malaga
British Airways	(London)-Turin-Thessaloniki	Oslo-(London)-Athens Copenhagen-(London)-Malaga		(London)-Hanover-Leipzig
TAT(BA)			Paris-Copenhagen Paris-Munich Paris-Stockholm	
CityFlyer(BA)		Dublin-(London)-Antwerp		
Finnair	(Helsinki)-Gothenburg-Amsterdam (Helsinki)-Dusseldorf-Barcelona			
Iberia	(Madrid)-Amsterdam-Stockholm (Barcelona)-Dusseldorf-Barcelona			
Icelandair	(Keflavik)-Stockholm-Oslo (Keflavik)-Copenhagen-Hamburg			
KLM	(Amsterdam)-Luxembourg-Strasbourg (Amsterdam)-Gothenburg-Helsinki			(Amsterdam)-Lisbon-Porto (Amsterdam)-Porto-Lisbon
Sabena			Barcelona-Venice	
SAS	(Copenhagen)-Brussels-Lyon			(Copenhagen)-Barcelona-Madrid
TAP Air Portugal	(Lisbon)-Copenhagen-Stockholm			
VLM				(Antwerp)-London-Liverpool
Total	14	4	4	7

Source: Airline Business, (June) 1994.

8.4 Financial Structure

8.4.1 Profitability of European Airlines

European flag carriers were profitable until the recession of 1990 and the Gulf war took its toll and demand dropped. Many carriers would not recouperate until their governments injected capital into the operations. This is the case for Air France, Iberia, TAP, Olympic and Aer Lingus. Other airlines have been able to recover on their own.

Dan-Air and Air Europe's problems were, according to industry analysts, not linked to lack of profitability but rather sudden drop in cash-flow. Due to the two airlines' high debt structure the airlines could not service their debt under the circumstances that occurred in 1989 and 1990. Air Europe specifically had with its management

buyout attempted to go ahead with its expansion schemes without the interference of the 'City'. In fact, Air Europe's relationship with the City had deteriorated following the carrier's withdrawal from the stock-market. That on its own limited the company's financial options if one compares the options Dan-Air had in its crisis.[344]

An important facet of the state owned carrier's profitability is the importance of profitability as a prerequisite for privatisation. Privatisation as such is important to level the competition environment in Europe. Lufthansa's preparation for privatisation was based on the carrier's negotiation of running its pension plan on its own. That and the carrier's profitability in 1994 will allow the government to divest its 51 percent stake.[345] The same situation is with Lufthansa, Iberia and Olympic. These carriers will not be privatised until the carriers have been profitable for some period of time. If that will be achieved remains to be seen, but a tougher stand on the injection of state capital may render these carriers bankrupt before the profitability target will be achieved. Then the question arises if a state owned carrier will be allowed to go bankrupt?

8.4.2 Subsidies

The Commission, after taking a stand against subsidies, allowed state subsidies due to the recession and the Gulf war. These concessions were initiated due to a rising pressure to postpone the whole third package due to the recession. The Commission decided not to delay in any way the liberalisation process put forth in the third package but took the stand that it would look favourable on state aid which was intended to compensate for extra costs incurred as a result of the Gulf war. Furthermore it would allow Member States to defer the collection of ATC charges for up to two years. After concessions by the Commission the French government agreed on a $396 million capital injection for Air France, Alitalia received $300 million and the Belgian government injected $1,030 million as a restructuring package for SABENA. In July 1992 Air France received a further capital injection from Banque National de Paris for 8.8 percent stake in the airline.[346] The Commission decided also to approve a $1,200 million state aid from the Spanish government to Iberia, under the provision of Article 92 of the Treaty as an aid to long-term restructuring of the Spanish carrier. A further source of state aid to Iberia has been under the regional development clause of Article 92(3) to maintain air transport services on unprofitable routes that are necessary to maintain regional or island links. As a result of the precedence the government of Portugal injected aid to TAP Air Portugal to cover losses on services to Madeira and the Azores.

In 1994 the European Commission (EC) allowed a further Fr20 billion or $3,6 billion assistance to Air France. The capital will be used by the carrier to restructure and will be paid to the carrier in three parts first Fr1.5 billion that will be used immediately to pay down French Government Loan that did not conform to EC rules,

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[344]Airline Business, 'Too Close To The Sun', May 1991, pp. 24-26.

[345]Aviation Week & Space Technology, May 9, 1994. p. 33.

[346]The bank is 70 percent state-owned.

the rest will be paid in 1995 and 1996 upon satisfactory adherence to the restructuring plan. At the same time Olympic Airways gained approval for Dr545 billion or $2,3 billion with the condition that the carrier will not act as a price leader on the Athens - Stockholm and London routes. In addition the carrier will not gain an extension for the island services after the monopoly extension runs out in 1998.[347]

Strong opposition to these capital injections have been expressed by the Member States whose airlines are private or not funded as a matter of policy, these include the UK and Denmark along with the European independent airlines and the United States of America. The blocking of further state aid is extremely important for the smaller carriers and potential new-entrants as scaling down of the unprofitable state-owned flag carriers would give those an opportunity to gain access to congested airports.

8.4.3 Fare Structure

Although high intra-European fares were one of the motivations for liberalisation, substantial fare reductions have been slow to materialise.

The three routes experiencing the greatest fare reduction were liberalised through bilateral negotiations before EU-wide liberalisation. These are London - Amsterdam, London - Paris and London - Dublin.

Barrett concluded that fares on the liberalised Dublin - London route did not increase from 1986 to 1989 although the consumer price index rose by 10 percent in Ireland and 18 percent in the United Kingdom. This development contrasted highly with the pre-deregulation increase of 72.6 percent from 1980 to 1985. In an article Barrett followed the developments on the route, which explain well the competitive relationship between a flag carrier and an independent. The flag carrier Aer Lingus is now in serious financial trouble and is being restructured(1994) with the assistance of the government. Ryanair has been in financial difficulties as well although it still offers competitive fares. The competition between the two carriers led to a division of routes between the carriers, imposed by the Irish Government, in order to improve their financial health prior to the full enactment of the Commission's liberalisation policy. [348]

There were two new-entrants on the liberated London - Dublin route; Ryanair that entered in May 1986 and Virgin Atlantic that entered in June 1988. Virgin subcontracted the operation of the route but cancelled the whole affair in 1989 along with an identical operation to Maastricht on the grounds that the returns were minimal especially in view of management time invested.[349] British Airways and Aer Lingus operated under a revenue pool agreement until April 1988. The two new-entrants were not subject to such agreements or limitations after 1986, but Ryanair was restricted to 44 seat aircraft until then. The fare savings according to Barrett are 31 percent compared to pre-deregulation fares. The growth was 107 percent from

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[347] Flight International, 3 - 9 August, 1994, p. 4.

[348] Sean D. Barrett, Deregulating European aviation - A case study, Transportation , Vol: 16, 1990, pp. 311 - 327.

[349] More Than a Toe in the Water Now, Air Transport World, June 1990, p. 19

deregulation until 1989 compared to 2.8 percent from 1980 to 1985. The fares were lowered between 48 to 66 percent for peak and off-peak unrestricted fares by the new-entrants but the incumbent fares were subject to restrictions. The new-entrants created, therefore, a substantial market stimulation in an otherwise stagnant market. When Ryanair introduced services from Dublin to Manchester offering unrestricted low fares the frequency jumped from 14 per week in 1987 to 50 per week in 1988, an estimated 240 percent increase in the incumbent's frequency. New entrants are of course vulnerable to such competitive reactions by the incumbents as their size allows cross-subsidising of fares.[350]

The London - Amsterdam route is another example of a highly competitive market open to new entrants. The route's only limitation is the lack of prime slots out of London. The result has been less low fare offerings out of Heathrow than Gatwick, Stansted, Luton and London City Airport. This is not surprising in view of the fact that new services and new airlines on the route are mostly limited to those secondary London airports. British Caledonian and Transavia operated on the Amsterdam route from Gatwick and British Midland(BM) from Heathrow. Most of the route's growth has been stimulated by the new-entrants due to the low fares stimulating the leisure market:

> When British Midland entered the route on June 30 in 1986 it offered a £39 one way late saver and £69 Super Pex return undercutting substantially the standard one-way £69 and £119 day return charged by British Airways and KLM. Few days later British Airways relaxed its economy fare restrictions, thus, converting the £73 one-way fare into a full economy without booking restrictions. In March 1987 BM introduced a low three day return fare, claiming to be offering 30 percent lower fares than the competition on the route. In 1989 the frequency was stepped up to eight weekday and four weekend return flights. This move led the carrier to become the highest frequency carrier on the route, with KLM's seven and BA's six daily return flights.[351]

Restricted fare promotions are increasing slowly with one notable example being Sabena's introduction of the 'Skypass' for the UK - Belgium market in 1993. This concept allowed five trips or alternatively unlimited travel over three month period at substantial savings. British Midland (BM) matched this offer partially by offering a comparable offer to Sabena. BM, however, introduced network-wide a new product called 'Diamond EuroClass' for business passengers at a comparable fare to the competition's economy fare. The incumbents responded on routes served by BM but did not match the offer network wise. Such a reaction is of course sensible by the larger airlines as there is no sense in diluting yields on low competition routes under their present cost structures.[352] However, such action may be viewed as anti-competitive.

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[350] Op. Cit. (Barret 1990).

[351] Source: Reuters Textline.

[352] Op. cit. (Reuters Textline)

8.4.4 Cost Structure

The cost structure of European airlines has historically been higher than that of US carriers like mentioned in previous chapters. R. J. Windle reported US advantage in 'total productivity' over European carriers. Total productivity is computed as the ratio of total output to total input using a translog multilateral index procedure.[353]

Using the resulting TFP's Windle arrived at the conclusion that in 1983 U.S. carriers had 19 percent advantage in total productivity over Europe. In terms of unit cost the advantage was 6.9 percent. He reported further that if the characteristics of the sample firms are examined, European airlines had advantage in labour costs and materials price, but disadvantage in terms of fuel price, capital price and output. Windle notes that in 1983 the labour cost advantage for European carriers was offsetting the productivity disadvantage in terms of total costs. As exchange rates became disadvantageous and the dollar fell in comparison with the British pound this cost advantage was reduced in real terms. Therefore, in the long term it is only productivity that can provide true cost advantage. In fact the largest U.S. carrier's advantage over European carriers, according to R. J. Windle, is traffic density, or 23.9 percent in 1983. The second highest difference is 10.5 percent higher unit cost due to government ownership. That leads to higher inputs at European carriers to produce similar output as that of U.S. carriers.

Table 8-6 Characteristics of Two Regions in Windle's Sample

Variable	*U.S. airlines*	*European airlines*
Output	1.000	0.522
Stage length (miles)	748	753
Load factor (%)	60.6	64.3
Points served (average)	107	103
Stock	1.000	0.529
Labour price	1.000	0.687
Fuel price	1.000	1.157
Materials price	1.000	0.936
Capital price	1.000	1.015

Source: R. J. Windle (1991)

The study by R.J. Windle is useful to show the difference between U.S. carriers and carriers from other world regions at one point in time, 1983. It does not, however, show the trends in the variables over a period of time when many changes occurred in Europe. Nevertheless, it is likely that the findings have held for most of the variables until the liberalisation process started.

8.5 Competition Tools and Strategies

8.5.1 Frequent Flyer Programs (FFP)

Frequent flyer programs were slower to gain following in Europe than in the United States. Initially these programs were Club-programs, that provided frequent flyers

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[353] This method was proposed by Caves, Christensen and Dievert: Multilateral Comparisons of Output, Input, and Productivity Using Superlative Index Numbers, Economic Journal, Iss. 92, pp. 73 - 86., as reported in Robert J Windle: The World's Airlines: A Cost and Productivity Comparison, Journal of Transport Economics and Policy, January 1991, pp. 31 - 49.

with privileges like lounges, hotel room upgrades, car rental upgrades and all sorts of discount programs. These type of programs lacked seriously in competition with the American FFP that gained increased acceptance in the European business world. The European airlines feared the costs involved and waited until the move could not be postponed unless loss of valuable passengers was to occur.

New-entrants in Europe just like in the United States are at a disadvantage when it comes to FFP as they will not be able to offer as attractive benefits to their passengers as the larger carriers can. The small UK new-entrant Virgin Atlantic Airways has tried to solve this problem, as so many other small carriers, by offering rewards other than air travel. Such rewards come at a higher cost for the airline as it will be in the form of outright cash, while air travel awards will fill in empty capacity at marginal cost. The benefit for the airline is there as long as the cost of the reward is lower than the revenue gain of maintaining the passenger's loyalty.

An other way to circumvent the limited scope of the new-entrant's FFP is to engage in a major's FFP. This has been relatively easy for European carriers by joining a U.S. carrier's FFP. The benefit for the U.S. carrier in this sort of co-operation is to gain feed from each other. Co-operation of European FFP is also increasing as British Midland and Virgin have joined forces. The relationship is quite important as British Midland is a short-haul carrier on intra-European routes but Virgin a long-haul carrier on international routes. British Midland is also part of SAS's FFP as the latter carrier holds 40 percent stake in the British carrier.

Frequent flyer programs have, like in the US, gained huge importance in travel behaviour of the business community and will do so in the foreseeable future. The question then arises if the FFP will distort the competitive equilibrium seriously in Europe between the smaller and larger carriers. This is not necessarily so as the FFP's co-operation is increasing and awarding rewards that are not necessarily in the form of air travel. Thus, an airline that does not fly to exotic holiday resorts may not be at such a great disadvantage if some exotic alternative rewards are offered. Furthermore, a small carrier participating in a large carrier's FFP may reduce the disadvantage of its limited route system. In addition to this, there have been discussions relating to the regulation of FFP along the lines of the CRS. Meaning that if an airline offers a FFP any other airline should be able to participate in that FFP. Thus making the FFP more like a commodity. The only country that has passed regulation in this fashion, is Sweden that required SAS to open their FFP to smaller carriers. The general consensus is, however, that such regulation would not be in the airline's best interest as it would render the programs useless to the airlines.

8.5.2 Computer Reservation Systems

The European CRS development was an important advancement in the EU's unification in terms of air transport and enhancement of competition. Perhaps not foreseen entirely at the outset, but later, as regulation changed the playing field. The reason for this was that each European flag carrier ran its own small internal CRS that was usually dominant in the domestic market but had no international coverage. As a result, the airlines allowed mutual access to each other's systems where system compatibility became an issue. This conduct was adequate for the large carriers but

less so for small players as they did not possess large computer systems nor the financial strength to acquire such systems. If the carrier was not able to gain access to one of the larger airline's systems their distribution network would be highly limited and presence limited to local markets. In this regard large commercial CRS's were in fact an important development for European's smaller carriers.

The two European systems Galileo and Amadeus are recent developments that have been fraught with development problems and political tensions. One only needs to look at the organisational structure of Amadeus to realise that the system was not build with economy in mind as it is fragmented into three centres in three different countries. The host airlines based their participation in the systems on the notion that it would provide them with host advantage and incremental revenue as had been realised by their US counterparts. During the development period important change in competition regulation and attitude towards CRS's advantage made these advantages less than anticipated. An advantage still intact is the ability of the host airlines to develop sophisticated information systems deriving data from the CRS's in order to enhance the airline's competitive advantage. Smaller airlines do not have the financial scale to develop such systems and will therefore have to rely on other ways to keep track of trends in the competitive environment.

An early issue was whether the CRS's host airlines could access sensitive marketing data that was bound to accumulate in the CRS's. As a result, the question of 'hosting' or 'de-hosting' of the CRS arose. De-hosting means that the CRS would be run like an independent company and no one airline would, hence, be able to access an other airline's marketing data. The route taken within the EU was approved in October 1993 by a change to the 1989 CRS regulation, that did not require the CRS's to be de-hosted but required the CRS's to have legal identity separate from their host airline. Furthermore, there had to be functional separation that excludes any airline from accessing sensitive data. In order to enforce this separations regular CRS audits would be conducted. The early EU CRS Regulation of 1989 followed the US Regulation closely in many important respects (see Section 3.4.1) in terms of removing bias from the systems.

The passing of the legal identity requirement was an attempt by AEA airlines to limit SABRE's entrance into Europe as it had been extending its services into that market since the 1990's. Another feature in the regulation requires an airline that owns part of a CRS to participate in a competing system. This levelled the ground for competition as a flag carrier could thereafter not refuse participation in a competing CRS as that effectively secludes the competing CRS from that market, as TA's will not subscribe to a system that does not contain flights on which a majority of bookings are made. In addition to these changes the 1993 regulation allowed the coverage of charters within the CRS's. AEA carriers had lobbied for ongoing seclusion of this part of the industry. However, the Third Package removed the regulatory distinction between charters and schedules, therefore, leaving no reason to exclude charters from CRS's.[354]

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[354] The Avmark Aviation Economist, Do airlines still need to own CRSs, April 1994, p. 17-18.

Given the increased neutrality of the CRS's the systems have become less a barrier to entry than before. In fact the systems do provide new-entrants with instant access to a large pool of TA's. The question still remains if reality actually conforms to the ideas underlying the regulation. The CRS's could still discriminate on the basis of price, functionality and access to information retrieval. Regulation 83 from 1991, is a block exemption from Article 85(1) that prohibits co-operation agreements. Therefore, a co-operation to run a CRS system is granted given certain conditions. On of which is that the smaller airline's are sheltered against discrimination on behalf of the CRS's host airlines. Furthermore, the conditions state that: (i) all carriers should be allowed to participate in the CRS; (ii) the CRS vendor can not attach to the participation unreasonable or supplementary conditions which have no direct relationship with the participation in a CRS; (iii) participating carrier may switch from one system to another given a six month notice, without penalty; (iv) the fees charged must be related to the cost of the service provided; (v) the vendor must provide proprietary information on practices, fees, facilities, editing and display criteria used; (vi) the system vendor must provide a principal display which must include data provided by the participating carriers on schedules, fares and seats available for individual purchase; (vii) a vendor must ensure that subscribers do not manipulate information provided by the CRS that would lead to inaccurate, misleading or discriminatory presentation of information to consumers; (viii) a vendor may not impose any obligations on subscribers to accept technical equipment but may require the use of equipment compatible with the system; and (ix) a vendor may not conduct his business in such a way that competition between systems is in any way restricted.

The conditions do, as can be seen from the itemised list above, provide for a level playing field for new-entrants in terms of CRS's. The question that is left in relation to new-entrants and CRS's is then to what extent new-entrants were disadvantaged before the passing of these regulation and whether there are still any biases left associated with CRS's. To answer this the new-entrants were basically disadvantaged to the extent to which their own CRS were inadequate or they lacked access to a major carrier's CRS's, as commercial CRS's were not in general use.

8.5.3 Predatory Behaviour

The U.K. has perhaps, along with the government of the Netherlands, the most liberal view towards competition in air transportation. In the U.K. liberalisation has been exercised for a considerably longer period of time than in most other European countries. The country has enjoyed more airline start-ups than any other European country for a number of years. In a Statement of Policies that took effect on 1 August 1993, the U.K. Civil Aviation Authority (CAA) has laid down firm policy on anti-competitive behaviour, where such behaviour constitutes of: (i) 'the changing of fares and rates at levels which are insufficient to cover the costs of providing the services or facilities to which they relate or which are otherwise unreasonable low;' (ii) the payment of commissions at rates which are higher than the airline otherwise pays;' and (iii) 'the addition of excessive capacity or frequency of service; where such

behaviour would have or would be likely to have or is explicitly intended to have the effect of crippling, excluding or driving off a competitor.[355]

Consequently the enforcement of the competition rules is extremely important to ensure the survival of new-entrant carriers. According to the EU Directorate General for Competition, dominant airlines must not restrict competition or take advantage of their market power. This is especially pertinent to fare agreements, travel agents commission overrides, sinister use of a CRS system, refusal of interline agreements, manipulation of airport arrangements in order to cause disadvantages to competitors and the use of predatory pricing.[356]

The items listed should benefit new-entrants if the regulator will effectively pursue the policies aim. The experience in the U.S. and in Europe shows, however, that such actions can be hard to follow-up simply due to the complexity of proving such adversities. It is interesting to note that both the EU and the US Justice Department have effectively used non-legal procedures in rectifying alleged violations of the competition law, simply by implying that they will 'look further into the matter, unless the alleged violator will withdraw from the conduct.'

The Commission's formal process in such cases is to act after receiving a complaint, reach internal decision on wheather the matter infringes the Competition Articles, if it does, it will issue a statement of objection. Then there will be a formal hearing after which, the Commission will issue a final decision and give the airline in violation with one of the Articles, time to rectify the matter.

This is what happened when British Midland Airways (BM) complained to the Commission over Aer Lingus' refusal to interline with BM on the Dublin - London route in April 1990. The Commission issued an objection to Aer Lingus. Following a formal hearing, the Commission gave a final Decision that found that the Irish carrier had infringed Article 85(1) and 86 by withdrawing interlining facilities from the British carrier. Aer Lingus was fined ECU 750,000 and required to provide interlining for two years to BM and was given two months to comply.[357]

8.6 Environment

8.6.1 Government Ownership of European Airlines

Government ownership of airlines in Europe has a long tradition that is still prevailing. After the third liberalisation package was initiated, increasing pressure has been on governments to dispose of their ownership, due to regulations that restrict their ability to provide the airlines with funds. Such development is highly beneficial from the standpoint of new-entrants, as government owned flag carriers will have to cut costs by trimming their route systems, creating room for smaller carriers and new-entrants.

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[355]CAA, 'Civil Aviation Act 1982: Statement of Policies on Route and Air Transport Licensing - May 1993: extract from Official Record Series 2, 25 May 1993, CAA London, May 1993, p. 3.

[356]This issue was addressed by Dr. John Temple Lang, see: Emerging Rules, Airline Business, September 1989. For a summary discussion, see: Op. cit. (Doganis), p. 84-85.

[357]Decision no: 213/92/EEC, published in OJ 1992 L 96.

Table 8-7 shows that five flag carriers were 100 percent owned by governments. All five of these carriers have posted substantial losses along with Alitalia that is 84.9 percent owned by the Italian Government.

Table 8-7 European Airline Ownership

Airline	*Governm ent Stake*	*Ownership status*
Aer Lingus	100.0	
Aero Lloyd	0.0	J. Klimitz 41.8%, Air Charter Market 36.1%, R. Braumer 22.1%. Lufthansa has option to buy 50%.
Air 2000	0.0	Tour operator Owners Abroad 100%(Thomas Cook 21%)
Air Europa	0.0	Grupo Hidalgo 58%, Politours 25%, Rotavia 15%.
Air France	100.0	
Air Littoral	0.0	Euralair 35%
Air UK	0.0	KLM 14.9%
Alitalia	84.9	State holding company IRI 84.9%, publicly listed 15.1%.
Austrian Airlines	51.9	Swissair 10%, All Nippon Airways 9%, Air France 1.5%
Braathens Safe	0.0	Shipping Group Braathens 100%
Britannia Airways	0.0	Thomson Travel Group 100%
British Airways	0.0	Publicly listed.
British Midland	0.0	SAS 40% of parent Airlines of Britain Holdings.
Crossair	0.0	Swissair 56.1% (59.8% voting)
Deutsche BA	0.0	Three banks 51%, British Airways 49%.
Finnair	70.0	Publicly listed 20.3%
Iberia	100.0	State holding company INI 100%.
Icelandair	0.0	Icelandic Steamship Co. 34%, employees 23%, publicly listed.
KLM	38.2	Listed on Amsterdam, Zurich and New York stock exchanges.
Lauda Air	0.0	Niki Lauda and ITAS 52.9%, Condor 26.5%
Lufthansa	59.2	Federal government 51.4%, local governments 4.4%, other state concerns 2.3%, publicly listed.
Luxair	23.1	Luxair Group 13.2%, Lufthansa 13%, three banks 38.6%, telecommunications co. 1.21%.
Maersk Air	0.0	Shipping group A P Møller 100%
Martinair	0.0	Nedlloyd 49.2%, KLM 29.8%, ABN Amro 21%
Meridiana SpA	0.0	Airfin 63%, Fimpar 11.75%, two banks 25% Controlled by Aga Khan
Olympic Airways	100.0	49% to be sold.
Sabena	61.8	Finacta 38.5% (Air France 66.7%, four Belgian banks 33.3%), Belgian institutions 0.7%.
SAS	50.0	ABA(Sweden) 42.9%, DDL (Denmark) 28.6%, DNL (Norway) 28.6%, (all three 50% government owned)
Spanair	0.0	Tour operator Viajes Marsans 51%, SAS Leisure 49%.
Swissair	20.4	Delta Air Lines 5%, Singapore Airlines 2.7%
TAP Air Portugal	100.0	
TAT European AL	0.0	TAT Group 51% (owned by Sasmat/Marchais family 75%, Credit National 25%); British Airways 49.9%, option on rest Apr. 1998.
Transwede	0.0	Travel Company Sara 100%
Virgin Atlantic	0.0	Voyager Group 100% (owned by R Branson & partners).

Source: Airline Business 1994.

8.6.2 Congestion

Airport congestion is a major problem for new-entrants in Europe. The London Heathrow airport is the most congested European airport, suffering from lack of runway capacity, terminal capacity, aircraft bays and surface access. Other airports subject to some form of congestion are: Athens, Berlin, Dusseldorf, Frankfurt, Heraklion, Madrid and Milan. Airports about to become congested in peak periods are: Barcelona, Brussels, Copenhagen, Corfu, Geneva, Helsinki, Lisbon, Manchester, Oslo, Palma, Paris (CDG, Orly), Stockholm and Zurich.[358] Of the 50 densest intra-EU routes, 65 percent involve congested airport.[359]

[358]Op. cit. (CAA CAP 623) p. 6.

[359]Op. cit. (CAA CAP 623) p. 123.

In view of the fact that ECAC has visioned the doubling of aircraft movements by the year 2000, it is hard to observe the present airport system coping. This will of course be a major obstacle for the expansion of small airline's services and especially new airlines as has been observed by Prof. R. Doganis :

> **On many routes the benefits of increased competition will not materialise because new entrant airlines cannot get sufficient runway slots to mount effective competition.**[360]

In January 1993, the European Council of Ministers approved new rules for slot allocation at Community airports. The rules that took effect in February 1993 and became part of the Community's law, give the Airport Co-ordinator the responsibility to allocate the slots available at congested airports, like the IATA system did. The rules, however, make it the responsibility of the member state to designate what airports are classified as 'congested' and, thus, to be co-ordinated. 'Grandfather rights' are in effect under the rules, but airlines must show that they have used the slots 80 per cent of the allocated time. If the slots have been used less they will be pooled for re-distribution, 50 per cent of which have to be given to new entrants. The distribution of airport slots between airlines themselves, will be allowed by the Commission, granted a number of conditions to make sure that the slot allocation process is open to all interested airlines and that slot allocation is transparent and non discriminatory. [361] Due to the level of airport congestion in Europe, slot allocation is of a major importance and one of the greatest barriers to entry to the most lucrative markets. As is evident from the discussion on slot trading and provisions for new-entrants in the USA (see Section 5.5.2) there is no simple solution to the problem. As a result, it is recognised that new-entrants in Europe will find slot access a major barrier to entry and there will probably not be any agreeable solution to the problem due to its nature. However, new-entrants in the United States have been able to circumvent the slot problem by adopting a strategy of entering secondary airports at comparatively lower price. As mentioned before the European situation is certainly much different from the USA, but one must conclude that there is an ample scope for European new-entrants to adapt such strategy and serve secondary airports (see Section 7.6.1).

Berend J. H. Crans and Steven P. Cras conclude in a review of the Slots Regulation:

> **In our view the Slots Regulation does not qualify as a tool to facilitate access to the air transport market for new entrants, but rather as a confirmation of anti-competitive practices which have characterised this industry...**[362]

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[360] Rigas Doganis, The Importance of the Competition Rules for Fair Competition - An Economist's View, a paper given at the Royal Acronautical Society, 1993. (Undated)

[361] EC Ministers Approve Slot Allocation Rules - Airspace Allocation Legislation, Flight International, 27 January, 1993, p. 6.

[362] Bernhard J.H. Crans and Steven P. Cras, EC Aviation Scene, Air & Space Law, Vol. XIX, Number 1, 1994, p. 34.

It is only non-use of slots by the incumbent carriers that can provide new-entrants any opportunity to access congested airports but that rule is useless in itself for the new-entrants as the incumbent can easily utilise such slots in various ways to prevent it going to the new-entrant, besides any slots coming up for such consideration would generally be off-peak slots. As a result, the most likely access of a new-entrant to a congested airport is through capacity increase of the airport and concessions of incumbents before the EU due to challenged mergers or alliances.

The Air Traffic Control system is also a major constraint. Various measures have been taken by the EU in order improve the ATC capacity. Due to lack of standardisation the EU has proposed compulsory technical and operating specifications for the procurement of ATC equipment. The directive requires member states to ensure that (i) automatic data transmission between air control centres by 1998; (ii) complete coverage of inter-operable radar by 1996; (iii) computer assisted air traffic management by 1996 with 5 or 10 nautical mile standard; (iv) and the optimisation of the work of ATS routes and airspace structure backed by area navigation from 1994. The EU considers EUROCONTROL to be the co-ordinator of the air traffic management system. This body is establishing a common traffic flow management system and centralised air traffic control system. The results will according to plan, reduce ATC congestion and delays and therefore create some of the necessary capacity increase. These steps are very important for small existing and new carriers as the prevailing carriers will resist fiercely any attempts to overtake or redistribute slots already in use.

8.7 New-entrants Within the European Union

8.7.1 New-entrants in The European Union 1987 - 1993

The number of airlines starting or exiting scheduled operations in each EU country from 1987 until 1993 are quite many. In fact, this rate has been close to or higher than that of the fully deregulated market in the US.

The table takes only into account the net number of carriers operating per year and does therefore not indicate exit by one carrier and entry by another carrier within the same year.

Table 8-8 New-entry by Country 1986 - 1993

Country	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*
Belgium	0	0	0	0	2	-1	1
Denmark	0	0	2	-1	0	0	0
France	-2	2	2	6	5	-5	-1
Germany	1	3	3	-1	-3	1	1
Greece	0	0	0	0	0	0	0
Irish Republic	0	0	-1	0	0	0	0
Italy	2	2	0	0	-3	1	0
Luxembourg	0	0	0	0	0	0	0
Netherlands	0	1	0	1	2	1	0
Portugal	0	0	0	1	1	0	0
Spain	0	0	1	-1	2	0	-1
UK	8	1	-3	-1	-6	0	-2

Source: Based on 'Airline Competition in the Single European Market', CAA 1993, Annex 2, p. 96. A minus in front of a number means that exit of carriers from the market is greater than new entry.

The numbers for the UK, Germany and France show that aviation activity in terms of number of new airlines formed is greatest in these countries, but at the same time airline failures appear to be most frequent. The reason for this activity in these countries is the size of Germany and France, and Britain's geographic separation from the mainland Europe that increases the demand for air travel.

An increased activity occurred in 1993 and 1994, as industry barriers were lowered due to readily available aircraft and the conclusion of many test cases on anti-competitive behaviour since the passage of the Second and Third liberalisation packages. In the first eight months of 1994, 31 European new-entrants of all types were set up, although most were regional carriers. Reed Travel reported that in the same period 20 carriers ceased operations.[363]

8.7.2 Who Were The New-entrants?

There have been quite many start-up operations in Europe in recent years as Appendix-B, shows. The most noteworthy jet operating new-entrants have been Air UK, Dan-Air, British Midland, Air Europe, Virgin Atlantic Airways, German Wings, Ryanair, Lauda Air and Aero Lloyd.

Table 8-9 European Jet Operating New-entrant Airlines

Airline	*Nationality*	*Scheduled operations began (operations started initially)*	*Closure Date*	*Remarks*
Aero Lloyd Flugreisen	Germany	(3/81)	1992	Started with three Caravelles. Acquired by Lufthansa
Air Belgium	Belgium	11/91		Operations to Palma.
Air Europe	UK	5/85(7/78)	3/91	Started as a charter carrier.
Air Europe SpA	Italia	1988		
Air Liberté	France	88(7/87)		Charter operating scheduled flights to Montreal.
Air Minerve	France	90(75)	92	Merged with Air Outre Mer and formed Air Must.
Air Outre Mer	France	5/90(7/87)	92	Merged with Minerve and formed AOM
Air UK	UK	1/80		
Alinord	Italy	?	90	Sold to Unifly, which collapsed in 1990 and took Alinord with it into bankruptcy. Operated domestic routes.
AOM French Airlines	France	1992		
British Midland	UK	(38)		Began scheduled operations in 1953.
ContiFlug	Germany	92(64)	94	Initial operations from London City Airport to Berlin.
Corse Mediteranée	France	6/90(89)		
Dan Air	UK	(80)	92	BA took over routes and assets.
German Wings	Germany	89	4/90	
Lauda Air	Austria	88(4/79)		
Meridiana Air	Spain	4/90		
Ryanair	Ireland	5/86(5/85)		
Scottish European Airways	UK	1988	1990	
TAT European Airlines	France	(68)		BA has 49.9% stake with option on the rest in '97
Virgin Atlantic Airways	UK	6/84(6/82)		

Source: Air Transport World 1980 - 1994, Flight International 1980 - 1994. The numbers in brackets show initial start-up date, other dates are the approximate starting dates of scheduled operations.

British airline start-ups have been frequent due to the government's pro-competition policy. German new-entrant carriers, however, faired poorly against Lufthansa: German Wings folded soon, Aero Lloyd sold out to Lufthansa and ContiFlug went bankrupt. Charter carriers in Germany are now entering scheduled operations, namely LTU and Condor, but the latter is a Lufthansa owned company. LTU has

[363] Flight International, 31 August - 6 September, 1994, p. 11.

been especially aggressive in terms of entering routes. The carriers' individual route frequency has, however, been thin.

France, on the other hand, has been among the most protective European countries, especially in regard to its state owned flag carrier Air France. In fact, Air France was allowed to acquire two of the largest independent French carriers Air Inter and UTA, resulting in the flag carrier becoming dominant both in international and domestic air transportation in France. The merger resulted in Air France giving up its stake in TAT, which was taken up by British Airways that plans to acquire the carrier fully in 1998.

8.7.3 European and U.S. Differences With Regard to New-entrants

European new-entrants differ in comparison to U.S. new-entrants in numerous ways: (i) higher cost; (ii) subject to greater airport congestion; (iii) subject to greater competition from other transportation modes; (iv) subject to greater political influence favouring flag carriers; and (v) less access to international route licences due to bilaterals.

European new-entrants have higher costs than US new-entrants due to lesser productivity than their US counterparts. European new-entrants are subject to airport congestion at almost all major European airports, while slot control in the United States is only at four airports. Thus, slots to new-entrants are usually not available until a merger occurs like that of BA - BCal, BA - Dan Air and Air France - Air Inter. Because these mergers are frequently allowed on the basis of concessions by the acquiring carrier in terms of slots and routes.

Other transportation modes like trains, ferries and busses, not mentioning the highways, are highly developed in Europe. This means that due to lesser distances the option to use one of these modes has greater incentive than in the United States. This makes the harvesting of very short-haul routes problematic in comparison to possibilities in the United States. The effect of ultra-low prices on very short-haul routes ('Southwest effect')has, however, not been tested out effectively in most European countries. Meaning that the 'Southwest effect' may well work there just as in the United States. One factor supporting that notion is the increasing highway congestion in Europe. The utilisation of the aircraft could in fact be relatively easy on domestic routes in this regard if city airports like London City Airport would be readily available in more city locations. The problem has, however, been the marketing and pricing of such services.

Yield as represented in Table 8-10 indicates that European new-entrants charge higher fares than U.S. new-entrants. That is not abnormal as most of the new-entrants have been affiliated to a larger airline and/or avoided fare competition. Furthermore, larger portion of passengers are business passengers in Europe, than prevails in the US where larger portion of passengers using new-entrant airlines are leisure travellers.

The costs per available seat kilometre(ASK) are much higher for European new-entrants on the average than US new-entrants. Revenue per RPK is decreasing

between European and US carriers based on the airlines in the table indicating increased efficiency. The decrease is from 525 percent in 1982 to 466 percent in 1990.

Table 8-10 Comparison of Revenue ($) Per RPK (Yield) and Cost Per ASK for Selected European and US Carriers

	1982		1986		1990	
Airline/Region	*Rev. per RPK*	*Cost per ASK*	*Rev. per RPK*	*Cost per ASK*	*Rev. per RPK*	*Cost per ASK*
United States						
Air California	0.092	0.054	0.094	0.054	na	na
America West	na	na	0.062	0.038	0.069	0.046
Midway Airlines	0.107	0.059	0.080	0.047	0.075	0.052
Midwest Express	na	na	0.123	0.075	0.126	0.074
Southwest Airlines	0.065	0.037	0.066	0.033	0.071	0.042
Tower Air	na	na	0.044	0.076[a]	0.042	0.076
New York Air	0.104	0.060	0.089	0.054	na	na
People Express	0.060	0.035	0.045	0.032	na	na
Average	0.0856	0.0490	0.0754	0.0511	0.0766	0.0580
Europe						
Air Europe	na	na	0.727	0.487	na	na
Air UK	0.248	0.123	0.260	0.133	0.341	0.198
British Midland	0.241	0.149	0.201	0.108	0.290	0.155
Dan-Air	1.059	0.594	0.734	0.421	0.613	0.405
TAT-EA	0.249	0.166	0.575	0.326	0.471	0.569
Virgin Atlantic	na	na	0.049	0.035	0.069	0.048
Average	0.4493	0.2580	0.4243	0.2518	0.3568	0.2750
Difference %	525	527	563	493	466	474

[a] 1985. Source: ICAO Financial Program, DOT Form 41. Due to lack of data availability UK carriers are over represented, but they tend to be lower cost than carriers from other European countries.

Political influence is still a large factor in Europe, meaning that flag carriers receive large capital injections under various schemes and situations and protection at the local level. Whether such injections will be stopped in the future remains to be seen. It is highly unlikely that a government will maintain 'hands off' attitude if its flag carrier faces bankruptcy. Furthermore, both federal and local governments have attempted and will attempt to protect their own carriers by using all possible loopholes and permissions in the EU regulation in order to do so. U.S. carriers are of course also subject to political adversities at the local level. The difference is, however, that the scale of such influence is much larger and probably more nationalistic due to the diversity of the European countries.

Most denser routes within Europe are short-haul domestic or intra EU routes. Long-haul routes to points outside the EU are international, meaning that they are governed by bilaterals. The bilateral usually limits the number of airlines, fares and capacity allowed on the route. This reduces the ability of new-entrants to enter lucrative international routes unlike in the United States were all domestic long-haul routes are open to new-entrants. International routes out of the U.S. are then subject to the same limitations as the ones in Europe.

What this leaves us with is that new-entry in Europe is less viable in Europe than in the United States. Therefore, jet operating European new-entrants not affiliated with the incumbents through equity stake, are prone to failure. In fact, the incumbents are now using new-entrant airlines to gain access into other EU countries in order to prepare for 1997 and secure feed.

Of all the items mentioned above it is government capital injections into their flag carriers that skews the competition environment in Europe the most. If the flag carriers would have to become profitable they would have to scale down their operations opening up routes and slots to new-entrants.

8.8 Conclusion

European air transport has been characterised by monopolistic competition. The frame of mind that characterises the management of such monopolistic companies builds on the manager's ability to lobby the national government for favouritism that enhances the company's profitability. As management of European airlines has not shed this attitude their strategies have been characterised by anti-competitive behaviour and attempts to forge alliances in order to prevent full-force competition. This has raised major barriers to entry for new-entrants in Europe.

Mergers have been approved by the Commission without exception, but with conditions aimed at increasing competition. Such provisions have included giving up slots at congested airports forming a fund to enhance competition from independent carriers, or selling off subsidiary companies.

Alliances have become widely used by European carriers. Not only have the larger carriers formed alliances, but they have acquired equity stakes in most smaller carriers. This has segregated European air transport into 'peace' blocks. The result has been much less impact, of liberalisation, on fares than anticipated.

Charters were expected to enter scheduled operations extensively after the liberalisation process began, several did and then collapsed or pulled out. As large scheduled carriers lower their costs fares will come down. As a result, the charter 'advantage' will be reduced, pushing such carriers towards scheduled operations or loose market-share otherwise.

European carriers were usually profitable before liberalisation. After the Gulf war, the recession and the resulting rise in fuel prices, the most inefficient carriers experienced extensive losses. Many independent carriers went out of business but State owned carriers have received unprecedented amounts of state aid. This has skewed the competitive environment. If the carriers had been forced to scale down their operations by shedding the most unprofitable routes, new-entrant airlines would have gained slots and been able to mount more effective competition. In such an environment the public would have gained from lower fares but might have lost out due to sudden drop in service on thin routes like occurred in the US.

Fares have come down more on major routes served by one or more new-entrant airlines in Europe, especially on the Dublin - London, London - Paris and London - Amsterdam routes.

The greatest barrier to entry on some routes in Europe is airport congestion. In order for European air transport to develop adequately this problem has to be tackled.

New-entry has been most extensive in the UK due to the pro-competition attitude of the recent Government. New-entry has been extensive on the regional level in France, Germany and Denmark. Failures have been frequent in all of these countries. UK new-entrants have achieved larger size and more success than their counterparts in other EU countries. Bankruptcies have by the same token been more spectacular due to their large size, if one names, Dan-Air, Air Europe and Laker Airways for example. Three large new-entrants remain in Britain: Air UK, British Midland and Virgin Atlantic.

European new-entrants have higher costs than their US counterparts due to lower productivity. Operating revenue per employee was much lower in Europe until 1986 but has increased considerably in comparison to US carriers. Costs and yields are much higher in Europe than the US. This is due to a different composition of the passengers along with less productivity as mentioned before. The difference in passenger composition is due to the European airlines having left the leisure market more or less to the charters.

Political influence on air transport will still be much greater in Europe than the US, lessening the benefits of full liberalisation for years to come.

Part III.

The Issue of Failure

The issue of failure will be explored in this part from two standpoints. First, an extensive exploratory survey of the literature is performed on cited reason for failure, both by practitioners and academics. Furthermore, failure will be contrasted with success in order to explore the relationship between the two sides of this issue. Secondly, failure prediction models will be explored, especially in the context of empirical models.

9. The Question of Success or Failure

Continued adaptation mean continued pain,..
And it could hardly be otherwise, because pain
is one half of the power to form judgements.
Any form of life which insulates itself too successfully
against pain fails to notice any change in its environment until it is too late.
Hermann Korn

9.1 Introduction

The purpose of the following chapter is to identify the pertinent research already performed on corporate success and failure and to explore theories on the subject.

Knowledge on corporate failure can be divided into four parts: (i) Findings based on manager's 'hands on' experience of success or failure; (ii) case studies of successful or failed companies; (iii) construction of theoretical models of failure; and (iv) empirically derived prediction models of failure or non-failure.

9.1.1 Definition of Failure

There are many different definitions on what constitutes corporate failure, E. I. Altman cites the following:

> **..the situation where the realised rate of return on invested capital, with allowances for risk considerations, is significantly and continually lower than prevailing rates on similar investments.**[364]

Weston and Copeland make an important distinction between economic and financial failure. The above definition would, according to their distinction, fall under the economic criteria. In their view failure in economic terms means that the firm's revenues do not cover its costs. They go further and say that it can also mean that the rate of earnings on its historical cost of investment is less than the firm's cost of capital. A financial failure, on the other hand, can be divided into two types. First, *technical insolvency* constituting a situation where the firm cannot meet its current obligations, even if the assets of the company exceed its total liabilities. Second, *bankruptcy* where total liabilities exceed the assumed value of the total assets.[365]

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[364] Altman, Edward I., Corporate Bankruptcy in America, Heath-Lexington Books, 1971.

[365] Weston, J. Fred and Copeland, Thomas E., Managerial Finance, Eight Edition, The Dryden Press, 1986. See: pp. 951-974.

This account can not exclude Dun and Bradstreet, who publish annually the 'Failure Record', that has to do with statistical analysis of corporate failures. Their definition of corporate failure is as follows:

Business failures include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations, were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors.[366]

The definition is more practical in terms of identification of failed firm from statistical sources, while Weston's and Copeland's is more financially oriented. Beaver suggested even broader definition of failure, while constructing an empirical failure prediction model. He defined failure as a situation where any of the following events have occurred: bankruptcy, bond default, an overdrawn bank account, non-payment or a preferred stock dividend.[367] This definition is very broad as an overdrawn bank account is a frequent occurrence in the course of doing business and most firms have fixed overdraft permissions used as short term loan-facility. Stuart Slatter, on the other hand, observes a decline stage prior to failure. [368] Such decline state is important in terms of failure as during the decline state the symptoms of failure become apparent. Stuart Slatter has defined this decline state in terms of a turnaround situation where a firm whose real profit before tax has declined for three or more successive years.[369]

For the purpose of this thesis, a simple definition was constructed, where a new-entrant airline is considered failed: if it filed for bankruptcy under Chapter XI or VII, or was overtaken as a result of poor financial record.

9.2 The Legal Framework of Bankruptcy

9.2.1 Bankruptcy Law in the United States

In the United States there are different types of bankruptcy filings possible, Chapter XI and Chapter VII. Chapter XI is for cases initiated on voluntary basis and deals with reorganisation of the company involved. The latter route on the other hand is for involuntary filing, usually by a creditor. When Chapter VII is initiated the company is liquidated and the proceeds distributed among the creditors. The process is as follows: (i) The judge issues automatic stay, so creditors cannot press suit for

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[366]D & B do statistical analysis of corporate failures, see: The Failure Record (Annually), Dun & Bradstreet, New York.

[367]Beaver, W., Financial Ratios as Predictors of Failure, Journal of Accounting Research, Jan. 1967, Vol. 5, pp. 71-111.

[368]Of course this is not true in all situations, as companies can run into sudden catastrophic problems.

[369]Slatter referred to '1970 prices' in this definition, this has been omitted. Stuart Slatter, Corporate Recovery: A Guide to Turnaround Management, Penguin Books, 1984. p.19.

repayment, debts are frozen, secured creditors can ask for hardship exemption from debt freeze; (ii) unsecured creditors form a committee who can ask the court to appoint an examiner to investigate possible fraud or mismanagement, usually leading to the apointment of a trustee to run the company; (iii) the committee and company negotiate a reorganisation plan that contains among other things a repayment for frozen debts; (iv) creditors approve the plan following negotiations that can run from few months up to years, the approvement is based on the majority voting in favour of the plan by creditors owning more than two-thirds of the debt; (v) bankruptcy court judge approves the plan; (vi) the reorganised company emerges from bankruptcy having to meet the terms of the agreed repayment plan.

Under both types of bankruptcy filing, the debtor continues to operate the company unless the assigned bankruptcy court decides otherwise. Such a decision usually involves the appointment of a trustee that has broad powers according to court order. He may bring in new managers and replace existing ones. His role is basically to run the company, to minimise losses and sell it or parts of it as a going concern to maximise the returns from the liquidation for the creditors. The debtor can regain control from the trustee by filing a bond as required by the court. Reorganisation on the other hand, has the specific purpose of protecting the company from its creditors in order to return the company to profitability.

9.2.2 Bankruptcy Law in the United Kingdom

In the United Kingdom the Company's Act of 1893, 1948 and 1981, made it possible to appoint a receiver and a manager instead of a liquidator, which was the only alternative before the Companies Act of 1893. The receiver's role is to realise the assets of the company for a client who is usually a creditor and in doing so he has to keep the interest of other creditors in mind. When the receiver has collected for his client he leaves the company and normal business resumes, or the liquidator is called in to distribute the remaining assets to the creditors and shareholders.[370]

9.3 Bankruptcies and Exogenous Influence

9.3.1 Introduction

Bankruptcy is often explained by adverse influence from the external environment. The most frequent causes cited have been recession, change in government policy, high interest rates, labour disputes and acts of god, etc. Furthermore, it is common to see statistics that show that the age of failed companies as contributor to failures, that is the 'liability of newness'. Although these factors may be contributors they cannot be blamed on their own.

The following section reviews the pertinent literature, in order to establish the relationship between external variables and the age factor on corporate failures.

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[370]Op. cit. (Slatter), p. 19.

9.3.2 Environment's Influence

Goudie and Meeks found a relationship between the effects of exogenous macroeconomic shocks on the failure rate. Their research shows that a variation in the exchange rate can cause failures among large companies.[371] It is known that exchange rates can influence a company's ability to compete in international markets where the dependency on such markets is considerable. This is a fact for companies that have a limited domestic market but incur a large part of their costs in the domestic currency. This is a fact for many international airlines to name but one industry example. In terms of the macro-economic model, nations with small domestic markets but large exports are bound to be affected by this relationship. Desai and Montes found that changes in the interest rate and the growth of the money stock (M1) influenced the failure rate among companies.[372]

Altman concludes that many reasons attest to the increase in failure rates among US businesses despite the overall expansion of the economy(GNP): (i) chronically sick industries; (ii) high real interest rates; (iii) increased international competition; (iv) increased leveraging in corporate America; (v) deregulation of key industries (aviation, financial services, etc.); and (vi) relatively high new business formation rates.[373]

Table 9-1 Number of Failures and The Failure Rate in The US (1971-1991)

Year	*Number of Failures*	*Failure Rate (Failures per 10.000)*
1984	52,078	107
1985	57,253	115
1986	61,616	120
1987	61,111	102
1988	57,097	98
1989	50,361	65
1990	60,746	75
1991	87,266	106

Source: As reported in: Edward I. Altman, Corporate Financial Distress and Bankruptcy, 2nd ed., John Wiley & Sons, 1993, p. 14. Note that numbers compiled after 1983 included more industries, thus, rendering comparison with D&B numbers compiled before 1984 inaccurate, as a result, years prior to 1984 were not included in the table.

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[371] Goudie, A. and Meeks, G., The Exchange Rate and Company Failure in Macro-Micro Model of The UK Company Sector, Economic Journal (UK), Vol. 1001, Iss. 406, May 1991. p. 456.

[372] Desai, M. and Montes, A., A macroeconomic model of bankruptcies in the British economy, 1945-1980, British Review of Economic Issues, Vol. 4, pp. 1-14.

[373] Altman, Edward I., Corporate Financial Distress and Bankruptcy, 2nd ed., John Wiley & Sons, 1993, pp. 14-15.

The high failure rate from 1984 to 1987 and 1991 is blamed on recessions during the periods. Thus, recessions crush the weak companies lacking financial flexibility to account for reduced growth or decreasing revenues.

As stated before these variables discussed so far are contributors, but do not explain a company failure as such. That applies to liability of newness discussed in next section.

9.3.3 Liability of Newness

Lane and Schary's study on business failures found that the age of a firm is highly correlated with its susceptibility to failure. The predicted probability of failure by age of the firm shows that for the period from 1984 to 1990, the probability of two year old firm to fail within one year is 0.94, three year old 0.84, four year old 0.70, five year old 0.60 and for a ten year old firm it is 0.40.[374] Dun & Bradstreet (D&B) the leading source of bankruptcy statistics have reported age related findings. Their findings show fewer failures in the first year but then increasing in the following two to three years and then decreasing for each consecutive year thereafter. However, the total number of failures in a 10 year period from establishment, reaches 70 to 80 percent.

Table 9-2 Age of Failed Businesses in The USA

	Proportion of Total Failures (%)	
Age (Years)	*1980*	*1990*
1 Year or less	0.9	9.0
2	9.6	11.2
3	15.3	11.2
Total in 3 Years	25.8	31.4
4	15.4	10.0
5	12.4	9.4
Total in 5 Years	53.6	49.8
6	9.8	7.2
7	6.3	5.3
8	5.2	4.5
9	4.3	3.8
10	3.4	3.5
Total in 10 Years	81.7	74.1
Over 10 Years	19.3	25.9
Total number of failures	11,742	60,432

Source: As reported in: Edward I. Altman, Corporate Financial Distress and Bankruptcy, 2nd ed., John Wiley & Sons, 1993, p. 19.

Furthermore, the table above shows that in 1990 compared to 1980, failures in the early years are increasing, this seems to be especially so in the first year. The increase seems to be related to increase in deregulated industries that attract increased number of new-entrants. Furthermore, Lane and Shary found by regression

[374] Lane, Sarah J. and Schary Martha, Understanding the Business Failure Rate, Contemporary Policy Issues, Vol. 9, October 1991, pp 93-105. The probabilities cited are calculated within the sample of failed companies not all companies.

analysis that the age effect is twice as large as the macro effect for three year old firms but reducing gradually until the firm reaches the age of nine when it is about equal.[375]

In conclusion, it is important to recognise that the age factor as such is not a causal factor of failure at all. The underlying reason for the failure of a younger company, can be the founder's inexperience, lack of financial resources, marketing of a product that is not needed and therefore lacks demand, inability to sustain a low income period while the company is penetrating the market, lack of interest, bad health of the founder and so forth.

9.4 Causes and Symptoms of Failure

9.4.1 Introduction

John Argenti stated in his book 'Corporate Collapse: The Causes and Symptoms', that it was necessary to make a distinction between the causes and symptoms of corporate collapse. [376] As a result there have been number of attempts to come up with causal factors which explain why companies fail. It is apparent from the literature that there are a number of factors that differ from one research to another although there are certain similarities.

A survey by D&B in 1980 has indicated that over 44 percent of all corporate failures are linked with inexperience, unbalanced experience or incompetence.[377] In fact one can infer that success or failure will always be crystallised around the management factor. It seems that one can allege that there are causal layers of failure: (i) management ability; (ii) management actions; and (iii) the symptoms of management actions. This is, however, too simplistic finding calling for research into what constitutes 'good' management and how such a feature is integrated into the organisation and the internal and external forces.

It is apparent that the causal factors can be extremely varied. As a result, it can be hypothesised that the causes of corporate decline and failure cannot be attributed to few variables only.

In the next section the literature on success and failure will be explored. This literature review can be divided into three parts: (i) causes of failure according to individual accounts in terms of experience or observation; (ii) case determination of success and failure; and (iii) systematic academic research.

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[375]Lane, Sarah J. and Schary Martha, The Determinants of Business Failures: 1960-1990, working paper, Boston University, July 1991.

[376]Op. cit. (Argenti), pp. 121-123.

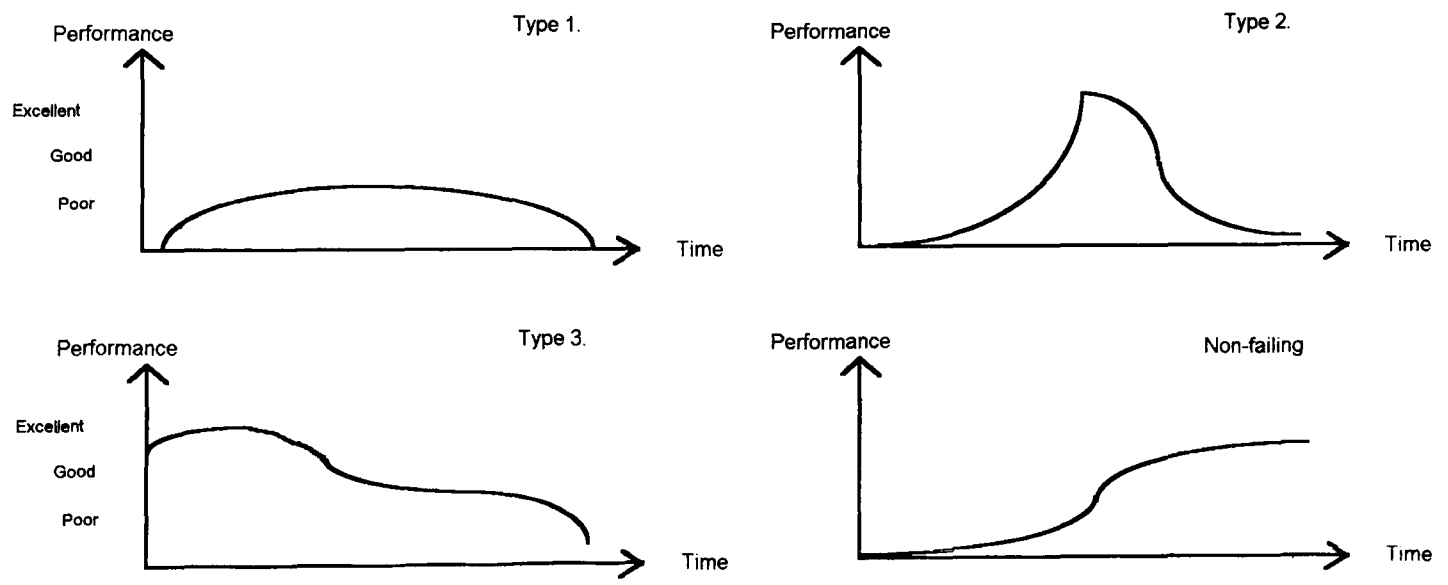
[377]Op. cit. (Altman), p. 17.

9.4.2 The Question of Failure

John Argenti observed that corporate failure prediction models were not good indicators as to what has gone wrong in bankrupt companies although such models could predict corporate failure for up to three years in advance with fairly high certainty. Therefore, Argenti came up with his three-part sequence of decline: defects, mistakes and symptoms. His observation was that corporations can have defects in their system if we think of the corporation in terms of a holistic system. Then he assumes that there are only three mistakes that can lead to failure, overtrading, the 'grand project' and excessive financial gearing. He alleged that companies making these mistakes were virtually doomed to failure and the result would be the appearance of the symptoms. The 'symptoms' can present themselves as creative accounting, deteriorating financial ratios, overtrading, big projects and high gearing.[378]

Argenti states that there are three different paths to failure and one path that characterises successful companies. His findings were that type one firm would never really take off in terms of performance and fail soon after formation; the type two, on the other hand, would take off very rapidly reaching high performance and receive much attention, but then decline as rapidly and fail; the type three would grow to excellence and then decline gradually until failure; while type four the successful company would achieve success along the 'S' curve and stay successful.[379]

Figure 9-1 Argenti's Trajectories[380]



Source: John Argenti, Corporate Collapse: The Causes and Symptoms, McGraw-Hill, 1976.

Argenti stated that accounting information was lacking in failing companies especially in terms of ineffective budgetary control, non-existent cash flow forecasts, lack of costing systems and incorrect asset valuation. Furthermore, he alleged that failing

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[378] As cited in (Lane and Schary), pp. 93-105.

[379] Op. cit.(Argenti), p. 148.

[380] Op. cit. (Argenti), p. 157.

companies lacked vision in terms of forecasting change, due to deficiencies in the top team. [381] Argenti's findings have been criticised due to their lack of research backing. D'Aveni concludes that Argenti's findings may not necessarily be defective but the findings, nevertheless, needing confirmation and further explanation.[382]

David Clutterbuck and Sue Kernaghan reported in their book 'The Phoenix Factor' based on a survey of most of the groups of people associated with company failure a profile of corporate failure causes. Their questionnaire was sent to 300 organisations and the reply rate was just over 15 percent. The most frequently cited causes for failure were poor financial information (40)[383], lack of control in general (34), insufficient working capital(33), management inexperience (33), lack of strategy (30), poor understanding of the market (29) and insufficient margins(27). The survey concluded that the aggregated main causes of failure were: (i) Inadequate information and controls; (ii) poor understanding of the market and the product; and (iii) inadequate strategic vision and implementation.[384] Although the study is based on a small portion of the total sample it is not uncommon when executives are surveyed. Their survey did not assess the external environment that has to be a contributing factor to corporate success or failure (market growth, GNP, etc.).

In order to give a comprehensive overview of frequently cited causes of failure in the literature, Table 9-3 was constructed from a number of studies annoted in Appendix C.

The most frequently cited reasons for failure, according to the aggregated table below, are: (i) improper pricing with regard to cost structure, (ii) high gearing, (iii) insufficient working capital, (iv) over dependence on one customer, (v) management inexperience, (vi) unbalanced top team, and (vii) inadequate control systems. The meta-analysis, thus, backs most of the findings proposed by Argenti, as discussed before.

One source of failure and success elucidation are from company 'doctors' or 'recovery' specialists. These are usually brought in to try to return the corporation to profitability after insolvency or when the directors find no other way or are pressured to do so banks. In a 1991 article the three leading British insolvency specialists David James, Roger Cork and Adrian Lickorish had a panel discussion on the subject. Their discussion revealed that the role of the non-executive directors is crucial in decline and failure as their purpose is to guide the company's direction. Furthermore, they found that a good banking relationship based on trust and loyalty could benefit a

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[381] Op. cit.(Argenti), p. 123.

[382] Op. cit. (D'Aveni), p. 577.

[383] Numbers in parenthesis denote frequency of cause marked by respondents.

[384] Clutterbuck, D. and Kernaghan, S., The Phoenix Factor: Lessons for Success from Management Failure, Weidenfield & Nicolson, 1990, pp. 79-80.

company running into problems, although, this does not have to be so in all circumstances.[385]

Table 9-3 Grouping of Factors Associated with Failure

Financial Factors	*Marketing Factors*	*Management Factors*	*Organisation Factors*	*Strategy Factors*	*Operations Factors*	*Environment Factors*	*Information Factors*
Improper pricing with regard to cost structure (5)	Over-dependence on one customer (4)	Management inexperience (4)	Unbalanced top team (4)	Overexpansion (3)	Poor facilities and machinery (1)	Change in demand (3)	Inadequate control systems (5)
High gearing (5)	Failure to adapt to new market circumstances (3)	Inadequate leadership (3)	Combined chairman, chief-executive (1)	Overdiversifi-cation (2)	Obsolete or easily overtaken technology (1)	Competitors actions (3)	Inadequate accounting systems (2)
Insufficient working capital (4)	Lack of marketing effort (1)	An uninvolved board (2)	Failure to change (1)	Wrong choice of strategy (1)	Maintaining inventories that are too large (1)	Increase in material costs (2)	Poor financial information (1)
Lack of credit control (3)	Poor marketing or sales management (1)	A dominant executive (2)	Organisational structure (1)	Poor implementatio n of strategy (1)	Poor operations management (19	Changes in the physical environment (1)	Insufficient awareness of competitive activity (1)
High cost structure (2)	Poor product quality (1)	Dissension in the management team (2)		Lack of strategy (1)		Poor state of the local economy (1)	
Undercapitalisa tion (2)	Obsolete product (1)	Inadequate management (2)		Big projects (1)		Government restraints (1)	
Lack of volume (2)	Too narrow or too wide product line (1)	Loss of vital personnel (2)		Playing follow the leader (1)		Technology advances (1)	
Weak finance function (2)	Lack of sales (1)	Poor planning (2)		Acquisition (1)			
Spending excessively as earnings begin to rise (1)	Over-emphasis on sales (1)	Theft and dishonesty (2)		Getting too big for your britches (1)			
Poor management accounting (1)	Poor location (1)	Ignorance of the wants, needs and expectancy of the stakeholders (1)					
Declining margins of profit (1)	Fat marketing organisations (1)	Arrogance (1)					
Underutilization of assets (1)							
Short term liquidity (1)							
Costing not able to show the fixed cost contribution provided by incremental sales							
Lack of financial control (1)							
Poor asset management (1)							
Overtrading (1)							
Financial policy (1)							
Failure to analyse financial statements carefully (1)							
Bad debts (1)							

Source: As reported in Appendix-C. The numbers in the brackets indicate the frequency of each factor's appearance in the literature.

The bank that is asked to furnish a rescue loan needs to know the company in detail in order to analyse the recovery changes. In fact the company insolvency specialists often provide security to the banks if they have a string of successful rescues. Furthermore, they mentioned that over-enthusiastic funding of growth out of proportion to the company's real value frequently causes corporate problems. Similarly, the management buyouts have added immensely to the corporation's debt,

[385]The Laker case was a point, as the bank called in the receivers over relatively small default compared to the total turnover of the company. That decision, however, could have been based on a long-term view of the company's destiny.

often during periods of low interest rates, making the companies vulnerable during rising interest rates. According to the three insolvency specialists, directors of troubled companies are prone to run into a 'siege' mentality and fail to admit their need of rescue until very late in the downward spiral.[386]

The company insolvency specialists' discussion reinforces further the findings presented in this section that place much responsibility and blame with the company directors. They just as well as Argenti point to the importance of the board of directors and especially the non-executive directors that can 'distance' themselves from the day to day operations in order to see the 'big' picture. Clutterbuck and Kernaghan point out, however, that insolvency specialists are usually brought in late in the decline process gaining only 'second hand' knowledge on the actual causes. The authors claim that venture capitalists do possess more information on the real causes of decline and failure due to their participation in the corporate saga from the outset.[387] In fact a survey conducted by Gorman and Sahlman concluded that venture capitalists saw shortcomings in general management as the main cause of failure in their portfolio companies. Table 9-4 stipulates these findings relating to venture capitalist's views on corporate failure.[388]

Table 9-4 Venture Capitalists' View on Corporate Failure Causes[389]

	Frequency (%)	*Average Rank*	*Std. Dev.*
Management problems			
Ineffective senior management	95	1.6	1.0
Ineffective functional management	50	2.5	1.1
Market problems			
End user market failed to develop as expected	43	2.7	1.9
Company failed to capture share due to:			
a) Poor channel selection/channel resistance	35	3.3	1.5
b) Competition	34	3.0	1.3
c) Poor product/market fit	28	3.5	1.7
Product problems			
Development delayed or unsuccessful	51	2.4	1.4
Manufacturing failure	11	2.9	1.4
Poor product performance	18	4.2	1.4
Inadequate quality control	13	4.7	2.4

Column 'Rank' refers to the rank of importance each factor was assigned by the respondents, while 'Frequency' refers to the frequency of mention across the sample. The column for standard deviation is for the ranks. Ranks: 1 = most important, 1 = least important.

Venture capitalists, themselves, are cited as a cause of corporate failure by Gorman and Sahlman due to: (i) their aid to capitalise highly uncertain ventures; and (ii) provide less capital than necessary to minimise own risk.[390]

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[386] A panel discussion with David James, Roger Cork and Adrian Lickorish: How not to go bust, Director, April 1991, pp. 46-52.

[387] Op. cit. (Clutterbuck), p. 79.

[388] Gorman, Michael and Sahlman, William A., What do Venture Capitalists Do?, Journal of Business Venturing, Vol. 4, pp. 231-248.

[389] Op. cit. (Gorman), p. 239.

[390] Op. cit. (Gorman), p. 238.

9.4.3 The Question of Success

Many of books have been published that take a set of successful companies and derive lessons on why they are successful. The book by Tom Peters and Robert Waterman, 'In Search of Excellence', provides insight to the reasons behind specific company success, according to the authors view, at a point in time.[391] Peter and Waterman in their work do not provide an underlying theory of success that is reinforced by time. The reason being that many of the companies cited as an example of excellence in the book have had poor returns since. Varadarajan and Ramanujam criticise the Peter's and Waterman book on various accounts; (i) generalisations not timeless; (ii) omission of factors like proprietary technology, market dominance and control of raw materials; and (iii) definition of 'excellence' faulty.[392]

An other similar account was made for Britain in the book, 'The Winning Streak', by Goldsmith and Clutterbuck. In their book they cite that the factors that distinguished the successful from the unsuccessful were: *leadership, autonomy, control, involvement, market orientation, zero basing, innovation* and *integrity*.[393] These items are similar to the items cited in Table 9-5, reinforcing further the general ideas on what constitutes success.

The Profit Impact of Market Strategy (PIMS) database of the Strategic Planning Institute is the largest and best known research project linking success with strategy. The PIMS program has established that performance is related to: (i) investment intensity; (ii) relative product or service quality[394]; (iii) labour productivity; and (iv) vertical integration.[395]

The PIMS program has lead to the following findings: (i) selling price inflation of over 10 percent has positive impact on profits; (ii) markets that involve big transactions are less profitable than those involving smaller transactions (less than $1000); (iii) products that are important for the customer affect profits negatively;[396]

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[391] Peters, Tom and Waterman, Robert, In Search of Excellence. Lessons from America's Best-Run Companies. New York, 1982.

[392] Varadarajan, P. Rajan and Ramanujam, Vasudevan, The Corporate Performance Conundrum: A Synthesis of Contemporary Views and an Extension, Journal of Management Studies, Vol. 27, No. 5, 1990, p. 466.

[393] Goldsmith, Walter and Clutterbuck, David, The Winning Streak: Britain's top companies reveal their formula for success, Penguin Business, 1985.

[394] Op. cit. (PIMS), p. 42. The PIMS methodology uses relative quality measurement, which is based on a questionnaire where respondents are led through a 'quality profiling' where they identify the key product and service attributes that count in the purchase decision. These attributes are then rated by the subjects on an additive scale totalling 100. Then they rate their performance along with performance of leading competitors for each attribute on a scale from 1 to 10.

[395] Op. cit. (PIMS), p. 42-43.

[396] This is measured in terms of the customer's proportion of total budget spent on products. Those that have high relative proportion are classified as 'important'.

(iv) large market-share[397] corporations have relatively higher profits than their smaller share rivals;[398] (v) market leaders offer higher priced, superior products relatively to competitors; (vi) successful low-share businesses were found to offer high relative-quality; (vii) for R&D and marketing intensive businesses the ROI of the average market leader is 26 percent greater than the ROI of the average small business, the comparable number is 12 percent for manufacturing, thus, market-share has more profit impact for high-tech industries; (viii) in investment intensive businesses, market leadership has lower payoff than in industries of low investment; (ix) when a business doesn't have quality advantage, market-share building can be very costly; (x) when superior quality and large-market share are both present profitability is virtually always present; (xi) the best way to beat competitors is by achieving superior perceived quality and/or superior conformance quality;[399] (xii) superior perceived quality leads to an ability to charge premium price or offer better value for the same price; and (xiii) there is a negative relationship between capital intensity and profitability.[400]

The PIMS database has also indicated that leaders are more prone to lose market share than gain, this is in direct proportion to their market-share. Thus, it is clear that smaller businesses gain from leaders on the basis of an ability to be innovative in ways, which the leader is most reluctant to follow.[401]

Table 9-5 shows an overview of factors cited in the litterature as success factors. Most of the articles found on the issue tended to provide rather generalised if not superficial words of an advice. However, reading the articles it was found that few major issues are important. First, to be a leader in terms of quality, price and any way that distinguishes the company from the rest. Second, to do careful planning in all aspects of the business, but especially in the financial and market aspects. Third, to know the competitors well in order to be able to plan moves. Fourth, to stay in touch with the customer and know his needs and wants. However, the first item, high relative quality, appears to be the most important item of all and the key to success if one has in mind the articles examined.

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[397] It is important to note that the PIMS program doesn't look at market-share as causing anything, large market-share is the result of causes like high relative quality, low price, etc. Thus, the pursuit of large market-share in itself is useless and not sustainable unless it is built on concrete product features.

[398] Op. cit. (PIMS), pp. 72 and 76. The PIMS reports that share compared to the three largest competitors to be the best measure of relative share and competitive advantage. The advantage of market-share is reported as being primarily the difference in pretax-margins on sales. Market leaders enjoy an average of 12.7% return on sales, while businesses with market-share rank of five or less earn only 4.5%. (PIMS).

[399] Being more effective in conforming to appropriate product specifications and service standards.

[400] This stems from an aggressive and often destructive competition, heavy capital investment acts as an barrier to exit, management may strive for 'normal' profit to sales target, but unrealistically so.

[401] Op. cit. (PIMS), p. 190.

Table 9-5 Success Factors: Literature Review

Richard Hall[402]	*John R. Graham*[403]	*Maren and Rose*[404]	*Russ Ray*[405]	*Deanna Berg*[406]	*Douchesneu and Gartner*[407]	*Dahl and Sykes*[408]
Company reputation	Saying "yes" rather than "no" to customers	Target marketing efforts where the current customers discovered the business	Managers must overcome the myopic bottom-line syndrome and instead be visionaries	Make it clear that the company welcomes creative ideas and behaviour	Entrepreneurs that are successful ar more likely to be: Raised by entrepreneurial parents	Develop a goal orientation
Product reputation	Raising standards to increase sales	Know the competition	Managers must be global strategists	End evaluation pressures, competition and excessive supervision	Have broader business experience	Understand how viewpoints influence the ability to achieve
Employee know-how	Staying in touch with the customer after the sale	Monitor every customer complaint	They must be masters of technology, especially information technology	Tolerate unconventional, troublesome behaviour and ideas	Have more business experience	Clarify values
	Doing everything possible to distinguish an organisation from its competitors	Emphasise point-of-contact service	They must be motivators	Emphasise informality and minimise long meetings	Seek to reduce risk	Identify wants and needs
	Generating sales leads	Enlist the sales force	They must be excellent politicians		Work long hours	Set achievable goals
	Working to develop a reputation of being the leader	Co-opt the competition	They must not become the intellectual prisoners of the period of time in which they live		Have personal investment in the firm	Develop strategies and tactics for accomplish-ment
	Keeping priorities straight	Be a predator			To be good communicators	
		Watch cash-flow and receivables			Have clear broad business idea	
		Have a plan			Engage in broad planning efforts that considered all aspects of firm and industry	
					Spend considerable time on planning	
					Use outside professionals and advisors during start-up	
					Use advice and information from suppliers and customers	
					To be flexible, participative and adaptive organisations	
					Sought to become larger firms	
					Sought to increase market-share	

One of the main defects of the studies and opinions voiced in the articles is the lack of systematic research and the development of theory on the subject of success. One might conclude that the construction of theory on business success is impossible due

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[402]Richard Hall, The Contribution of Intangible Resources to Business Success, Journal of General Management, Vol. 16, Iss. 4, Summer 1991.

[403]Graham, John R., What's Essential to a Five-Year Plan for Business Success?, Managers Magazine, Vol. 66, Iss. 7, Jul 1991.

[404]Maren, Michael and Rose, Ronit A., Skinflint Strategies: By Slashing Waste, These Trailblaizers Turn Their Companies into Profit Juggernauts, Success, Vol.: 38, Iss: 5, Jun 1991.

[405]Ray, Russ, The 21st Century Manager: A Survey of Futuristic Business Studies, Review of Business, Vol. 13, Iss. 1,2, Summer/Fall 1991.

[406]Berg, Deanna, In Defence of Disorder, Discomfort and Discontent, Journal for Quality & Participation, Vol. 14, Iss. 5, Sep 1991.

[407]Douchesneau, Donald A. and Gartner, William B., A Profile of New-Venture Success and Failure in an Emerging Industry, Journal of Business Venturing, Vol. 5, 1990.

[408]Dahl, Dan and Sykes, Randolph, Life Goals=Self Motivation=Business Success, Manage, Vol. 41, Iss. 2, Aug 1989.

to the inherent dynamism of corporate entities. In fact the authors of the book on the PIMS Principles shy away from attaching their findings to any underlying theory or principles.[409] This conclusion may be acceptable today to an extent but less so in the near future due to advancement in computer power that makes the simulation of complex systems possible. Thus, one can expect that theories will start to appear on the highly complex systems of human interaction and corporate behaviour in terms of success and failure.

These generalised conclusions of this section are not particularly useful for large businesses, a more detailed research is needed. Such research can be found in the next section where a research project called COMPASS contrasts failure with success.

9.4.4 Success Contrasted to Failure

Krüger examined 96 successful and unsuccessful companies in Germany to determine what factors explain corporate success and failure. Furthermore, his objective was as well to assess the possible implication of these factors for management.

The project called COMPASS (A Concept for Multidimensional Planning and the Analysis of the Strategic Components of Success) was divided into causal segments, those were then further divided into twenty one components of success. In order to distinguish the 'successful' and 'unsuccessful' companies, they were selected on the basis of extremities in performance measured through financial ratios. Then he analysed reports on the companies in the various business magazines, to determine to what extent the various components were responsible for success or failure.[410] The components were grouped into people responsibility, culture, strategy, structure, systems and implementation potential.

The most important groups in terms of unsuccessful companies was strategy (51%), people responsibility (50%), structure (45%) and implementation potential (37%). On the other hand, the most important groups in terms of success were strategy (48%) and then far behind, implementation potential (31%), systems (30%) and culture (28%). The potential contribution of this study is to uphold that failure as such is due to an interaction between number of factors. The surprising conclusion is that success, according to the findings, is attributed to much fewer factors. In fact, it is primarily one factor, product/market concept, with profit and revenue orientation and marketing/distribution/market research trailing far behind.[411]

It is pointed out in the article that sample and cultural discrepancies can attribute somewhat to biases in the findings. For example, research and development may gain less share as companies in the service sector do not have R&D departments. Both

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[409] Op. cit. (PIMS), p. 2.

[410] Krüger, Wilfried, Patterns of Success in German Businesses, Long Range Planning, Vol. 22, No. 2, 1989, p. 106.

[411] Op. cit. (Krüger), p. 109.

industrial and service companies may, on the other hand, rate innovation high on the basis of its wide meaning, covering both technical and service aspects. Furthermore, as the study is based on the literature (business magazines) there is the potential bias of what is considered 'newsworthy'. In addition, it is highly unlikely for the management of a successful company to be criticised for incompetence in the business press, although a firm may have landed such a profitable industry niche, that the company makes profit in spite of poor management.

Table 9-5 Factors Associated With Success and Failure in German Firms[412]

Factor	*Unsuccessful firms (%)*	*Successful firms (%)*	*Percent difference (%)*
Product/market concept	80	79	1.3
Profit and revenue orientation	80	57	29.8
Management qualification	67	26	61.2
Organisation of top management	65	23	64.6
Financial potential	61	38	37.7
Marketing/distribution/market research	53	57	-7.5
Production	47	38	19.1
Managerial Behaviour	45	23	49.9
Adaptiveness	43	30	30.2
Management motivation	37	13	64.9
Human capital	37	26	29.7
Innovation orientation	35	40	-14.3
Forming of subsystems	35	28	20.0
Co-ordination	35	13	62.9
Management systems	27	36	-33.0
Accounting and information systems	24	19	20.8
Planning/steering/control systems	20	34	-70.0
Existence of corporate visions	18	28	-55.6
Cost orientation	18	34	-89.9
Research and development	18	21	-16.7
Input goods	8	4	-50.0

9.4.5 Success as a Failure Factor

Success can lead to failure according to number of industry observers. The cause of this predicament is the inertia caused by the positive strokes of success, leading to resistance to change. According to Taucher this leads to over-management and high overhead costs. As a result, successful companies must always continue to grow and extend.[413]

Danny Miller carried out a study that identified four trajectories that explain why outstanding organisations are so seduced by their success, that it leads them to failure. The relevance of his study to new-entrant airlines is that many of them were

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[412] Op. cit. (Krüger), p. 107.

[413] Taucher, George, After Success. What Next: Success as a Barrier to Change, European Management Journal, Vol. 11, No. 1, March 1993, pp. 9-17.

very successful in terms of growth and profits to begin with but failed as they matured. This kind of behaviour of successful companies was previously identified by Argenti, as mentioned before.[414] Miller identified four *trajectories*, which he named: *Focusing*, *Venturing*, *Inventing* and *De-coupling*. The *Focusing* trajectory characterises companies which are marked by Craftsmen organisation that emphasise engineering culture, orderly structure, quality as a goal and quality leadership as strategy. Success reinforces this characteristics to the extreme through focusing which leads to the structure becoming rigid; the culture, technocratic; the goals, perfection; and the strategy, technical tinkering. Finally alienating the customers with perfect but irrelevant offerings. The second trajectory of *Venturing* converts growth-driven 'builders' companies managed by resourceful entrepreneurs into impulsive greedy 'imperialistic' companies: The strategy of building becomes over-expansion, the goals of growth become grandeur, the culture of Entrepreneurship becomes gamesmanship and divisionalised structure becomes fractured. The third trajectory of *Inventing* changes 'pioneers' into utopian 'escapists': The strategy of innovation becomes high-tech escapism, the goals of science-for-society becomes 'technical utopia', the culture of R&D becomes think-tank and organic structure becomes chaotic. The fourth trajectory of *De-coupling* changes 'salesmen' organisation into a 'drifter' organisation: A strategy of brilliant marketing becomes bland proliferation, the goals of market share become quarterly numbers, the culture of organisation man becomes insipid and political, and the structure of decentralised-bureaucratic becomes oppressively bureaucratic.[415]

The study cited above gives strong indication that positive reinforcement has come around due to extreme success causes overemphasis on key success factors which carries the company away from the very balance of resources, products and marketing that generated the success in the first place.

One other aspect of success is fast growth. Excessive growth causes failure. In the chapter on US deregulation we found that most of the new-entrant airlines experienced high growth but failed nevertheless. This is according to popular view, due to the company outstripping its human, production and financial resources.[416] Many rules of thumb have been assigned to what constitutes healthy vs. unhealthy growth, one quoted by Stockton, from Clemens of Durkee/Sharlit looks at yearly growth in excess of 40 percent as 'trouble'.[417] At any rate, too fast growth will increase receivables and inventories relative to sales, reduce cash-flow and increase debt servicing.

Aragon has proposed a formula (see formula 9-1) based on: (i) profit after taxes earned on each dollar sales; (ii) percentage of net income reinvested in the business;

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[414] Op. cit. (Argenti), p. 157.

[415] Op. cit.(Miller), p. 5.

[416] Stockton, Richard B., Symptoms of an Ailing Business, The Financial Manager, January/February, 1989, pp. 14-21.

[417] Op. cit. (Stockton), p. 18-19. Quoted from Durkee/Sharlit Associates, Los Angeles.

(iii) maximum amount of liabilities available or desired on each dollar of equity; and (iv) the dollar amount of assets needed to support one dollar of sales.[418]

$$\text{Growth} = \frac{(M)(R)(1+D/E)}{(A)-(M)(R)(1+D/E)} \qquad (9\text{-}1)$$

Where: M - Ratio of net income to sales, R - Ratio reinvested income to income before dividends, D/E - Ratio of total liabilities to net worth, A - Ratio of assets to sales.

An other alternative method was proposed by Weston and Copeland[419] based on the idea of sustainable dividends,

$$\text{Sustainable growth rate} = T \times m \times L \times b \qquad (9\text{-}2)$$

Where: T - asset turnover, m - margin on sales, L - financial leverage, b - retention rate.

Both formulas are supposed to capture the full range of the underlying management decision making relating to growth potential of the corporation.

9.4.6 Human Capital and Corporate Mortality

In most studies touching the question of the actual causes of failure, the single most frequently cited cause is, management. Three main facets can be intuitively inferred to constitute 'bad' management: (i) incompetence, that is combined by lack of education, experience and success relaxation(arrogance); (ii) single-mindedness, made up of problem denial, too much self-reliance and quick decision making that lacks analysis(high risk taking); and (iii) constraint, ignorance that is composed of poor environmental realisation, lack of delegation, poor identification of relevant information and over emphasis on central control.[420] Argenti concluded that 'bad' management was the main cause of failure. In his book he concluded that 'bad' management was characterised by: (i) 'one-man' rule where one person dominated his colleagues rather than to lead them, he would make decisions despite their hostility or reticence, he will not allow discussion and will not hear any advice; (ii) non-participating board that is composed of individuals that will not participate in discussions unless it affects their own vested interest; (iii) unbalanced top team, that is composed of individuals from similar backgrounds(all engineers, all finance men, etc.); (iv) weak finance function, meaning that control systems are inadequate; (v) lack of management depth; and (vi) combined chairman and chief executive.[421]

There are number of warnings of imminent business failure that can be observed in management behaviour, according to Sharlit: Isolated, obsessed, angry, indecisive,

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[418] Op. cit. (Stockton), p. 19-20. Quoted from George A. Aragon.

[419] Op. cit. (Weston & Copeland), pp. 233 - 234.

[420] This last item is sometimes a cause of under-financing because share-capital will not be sought unless it will not dilute the founder's control.

[421] Op. cit. (Argenti), p. 123.

capricious and a workaholic executives.[422] Denis Hickey confirms these observations through his consulting but identifies the signals as: denial, bad-luck, lack of balance, high life-style, follower attitude, impulsiveness, lack of values, harmful relationships and old age.[423] Clarence Farrar concluded after having had an experience with bankruptcy of own company that the early warning signals of failure were: management complacency, lethargy, egotism and greed. Then he alleges that sales deteriorate causing a chain reaction due to the central function of sales in the business survival. When sales decline inventory increases, as well as payables, expenses increase as percentage of sales and cash becomes short.[424] The above accounts of experience, give an indication into some of the symptoms of failure from the management side. These management disstress symptoms can give earlier warnings of imminent failure, than deterioration in financial ratios. The problem with this sort of indicators is, however, the lack of adequate measurement devices rendering the use of this information in failure detection highly questionable.

Having in mind the characteristics and symptoms of 'bad' management and management disstress, what constitutes then 'good' management? Duchesneau examined three types of factors to establish a profile of new-venture success and failure in an emerging industry: (i) the characteristics of the lead-entrepreneur, (ii) start-up processes undertaken during the founding of the firm, (iii) firm's behaviour after start-up, including management practices and strategic behaviours, associated with new venture success and failure. The research was based on 26 small young firms in the United States, divided into two halves one successful and the other unsuccessful. The research indicated that lead-entrepreneurs of successful firms had greater and broader business experience; (i) they believed that they had less control of their success in business; (ii) they work long hours; (iii) have personal investment in the firm and are good communicators; (iv) the successful firms were initiated with ambitious goals; (v) the lead entrepreneur had a clear broad business idea that was necessary to overcome adversity; (vi) confrontation and, sometimes, troubled financial situation; (vii) an effective start-up required broad planning that took into account all sides of the industry and the firm; (viii) they spent more time planning and used professionals and advisors to solve problems during start-up along with advice and information from suppliers and customers; (ix) they were more flexible, participative and adaptive; (x) the successful firms strived for growth; (xi) selected broad sectors of the market to sell to; (xii) and they had higher market shares that resulted in higher returns.[425]

It is obvious from the review so far that managers have quite varying styles that do affect their performance. According to Nahavandi's and Malekzadeh's Strategic

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[422]Sharlit, Ian, Tobias, Paul and Weinwrum, George F., Six Early Warnings of Business Failure, Executive Psychology, March 1990, pp. 26-30.

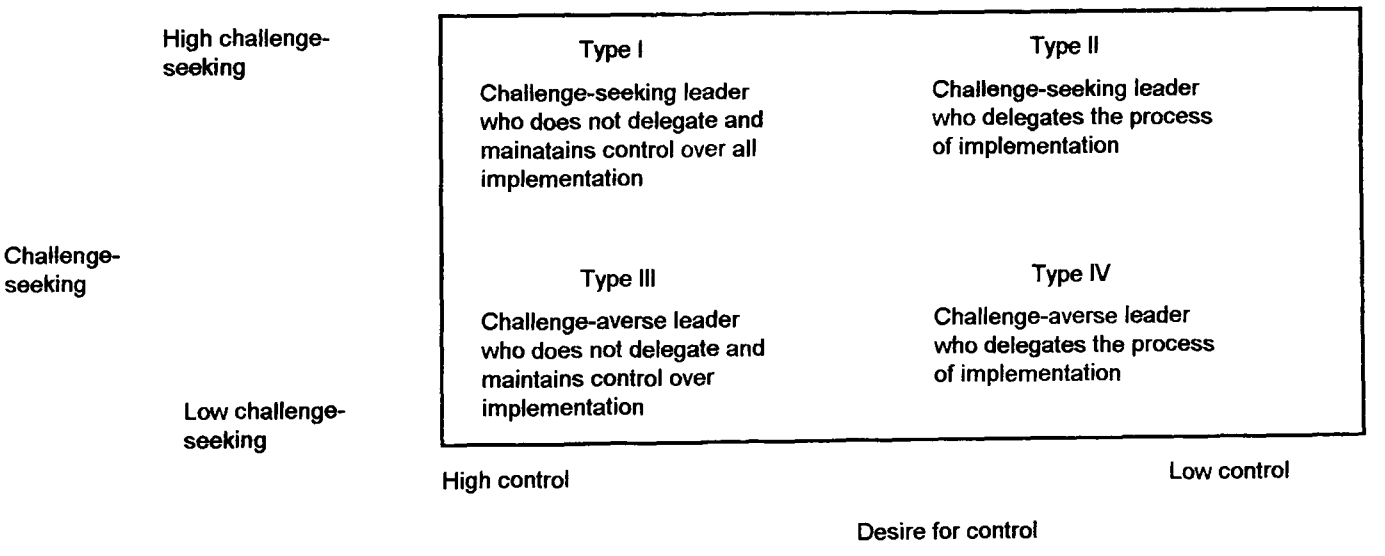
[423]Hickey, Denis, Look Beyond the Balance Sheet: Behavioural Warnings of Troubled Businesses, Commercial Lending Review, Vol. 6, No. 4, pp. 54-59.

[424]Farrar, Clarence, Early Warning Signals: Symptoms of a Troubled Company, Retail Control, March 1990, pp. 10-13.

[425]Op. cit. (Duchesneau), pp. 302-304.

Leadership Dimensions (SLD) there are four types of leaders, charted along two dimensions. Low challenge-seeking leader avoids risk and seeks to maintain the current state of affairs. This he accomplishes by initiating only strategies that require minimal change. Challenge-seeking leader, on the other hand, is risk taking, entrepreneurial and future oriented. On the other dimension, control, a leader exercising low control will emphasise employee involvement tolerance and the encouragement of diversity. In contrast, if a leader maintains high control he maintains high centralisation and little delegation. Such high centralisation will reduce employee participation and diversity.[426] These management types can obviously provide a very effective generalised way of classifying executives of firms into four groups. However, it could be that different company situations crave for different 'types' of managers. For example, a highly innovative technology firm may need Type II manager in order to unleash the staffs' creativity in order stay competitive. An other type of firm could be that of a financially distressed company in air transportation that needs to turn-around. In such a situation a Type I manager would be needed in order to force cost cuts through and implement the necessary changes to resturn the company to profitability. In fact it could be an option in some situations to alter the types of top leaders according to the situation at hand, given the constraints of necessary stability.

Figure 9-2 Strategic Leadership Dimensions[427]



An other dimension in the leader influence on success or failure of a company is his experience, often rpresented by age. Peter Preisendörfer and Thomas Voss researching German registrations and de-registrations found that there is a convex relationship between founders age and company mortality.[428] This relationship is an indicator of other variables that are associated with the age factor, but it is clear that founder's age as such does not affect a firm's mortality directly. In order to establish

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[426]Nahavandi, Afsaneh, Leader Style in Strategy and Organizational Performance: An Integrative Framework, Journal of Management Studies, Vol. 30, No. 3, May 1993, p. 414.

[427]Op. cit. (Nahavandi), p. 415.

[428]Peter Preisendörfer and Thomas Voss, Organisational Mortality of Small Firms: The Effects of Entrepreneurial Age and Human Capital, Organisation Studies, Vol. 11, No. 1, 1990, pp. 107-129.

such linkage a pure physical or mental relationship would have to be found.[429] This research indicates that there is an underlying factor that affects company failures. It can be concluded, however, that management style does change with age as experience sets in, like the findings by Preisendörfer's and Voss support..

Some theories state that firms will decline and eventually fail regardless of human influence, just like all organism that go through a life-cycle.

Next section will reveal these theories as they have been applied to organisations.

9.5 Organisational Life-cycle Theories

9.5.1 The Organisational Life-cycle Concept

Theories stating that companies have a life-cycle are similar to the product-life cycle concept. The life-cycle concept is derived from ecology theory that originates with Darwin and Herbert Spencer that applied his theory to the evolution of social organisations.[430] Many studies have been made in order to chart the characteristics of the different organisational life-cycle stages. A table in Appendix-N summarises a number of these studies.

The reason for associating the life-cycle concept to organisational failure is that if we assume that organisations have the same traits as organisms, there will be birth, maturity and decline leading to death. Researchers have found that organisations seem to follow this trait in most aspects, although the life-time span is very different from living organisms. In fact a corporation can extend its lifetime, in theory, indefinitely it adapts to its environment perfectly. The fact of the matter is, however, that inefficiencies are created with age due to rigid 'old ways' and employee shielding,[431] that limit the efficiency of the organisation leading to its inevitable decline.

The behaviour of organisations is then characterised much by their size and age, a factor that has to be recognised in research on corporate failure processes. These characteristics are charted in the table in Appendix-N. The important attribute to recognise is that growth can cause serious conflicts within the organisation if it is

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[429] The researchers conclude that since the youngest and the oldest account for the highest mortality rates it is doubtful whether entrepreneurship and self-employment can be effective antidotes against unemployment. This conclusion shows that the researchers do not recognise the employment potential of some of the start-ups that become successful and eventually very large employers. The fact of the matter is that renewal of the business flora has to come from start-ups and spin-offs. Therefore, the age related matching with business mortality can only be a linked as source of further research but not to make political conclusions like the researchers have found urge to present.

[430] David R. Hampton, et al., Organizational Behavior and the Practice of Management, 4th. ed., Scott, Foresman and Co., pp. 813-814.

[431] Layoffs are sensitive in organisations so if the organisation does not provide for constant education and training of employees it will accumulate ineffective staff that are pushed into non-productive roles, while others have to be hired to do what needs to be done. Thus, the organisation will suffer from employee 'inflation' with age.

very fast. The reason being that size in terms of employees requires dramatic changes in terms of motivation, communication and overview of management. Such adaptation is often behind causing serious problems for organisations that grow exceptionally fast.

It is possible to hypothesise that an organisation's decline is also linked to its market decline rather than its internal decline solely. The PIMS program has features in order to chart the life-cycle of markets and concludes that markets show life-cycle characteristics. According to the PIMS program markets show erratic behaviour of growth in infancy and instability in technology, market structure and competition strategy, followed by rapid growth after a company shake-out. Then there is a period of maturity and stability that can last for long or short period depending on the characteristics of the product. Finally the markets will decline because of the introduction of new products, superior technology or changing life-styles (needs).[432] One would of course expect that responsive management would, through innovation, offer new products in order to reduce the impact of declining markets on the organisation. That is precisely one of the factors that effectively distinguishes between successful and declining firms, according to research conducted by Danny Miller and Peter Friesen. They concluded, in a study based on the life-cycle concept:[433] (i) that steady increases in information processing and decision making sophistication occurred at least until the revival phase; (ii) that successful companies have more decision making complexity, especially in analysis, multiplexity and integration; and (iii) that the successful phases had higher level of innovation-related activity with the exception of risk taking.[434,435]

In addition to the research mentioned already, one can not exclude Eric G. Flamholtz, that uses the life-cycle[436] concept to explain why firms run into problems as they grow. He concludes that many firms develop an organisational development gap, which he names 'growing pains'. The gap can occur for two reasons, namely too fast growth or poor adaptation of infrastructure to size increases. His findings list the five 'most common organisational growing pains' as: (i) employees' feeling of being unable to cover their daily tasks; (ii) constant firefighting; (iii) lack of communication; (iv) lack of vision; and (v) few good managers being around.[437]

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[432]Op. cit. (PIMS) p. 54.

[433]In their study they divided the life-cycle into the following phases: Birth phase, growth phase, maturity phase, revival phase and decline phase.

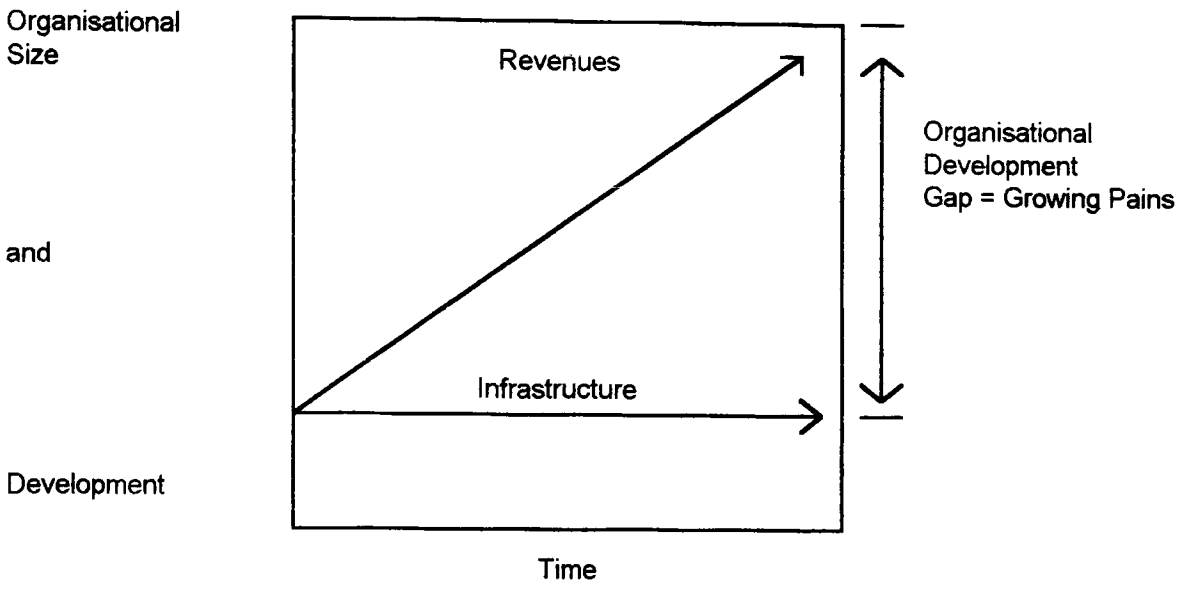
[434]Their study showed in the successful periods there is high level of risk taking in the birth-phase, but the opposite is true for the decline phase where the unsuccessful companies are more prone to risk taking.

[435]Miller, Danny and Friesen, Peter H., Successful and Unsuccessful Phases of the Corporate Life Cycle. Organizational Studies, Vol. 4, 1983, pp. 235-236.

[436]His life-cycle stages are seven: (1) New-venture, (ii) Expansion, (iii) Professionalization, (iv) Consolidation, (v) Diversification, (vi) Integration, and (vii) Decline and revitalization.

[437]Eric G. Framholtz, Growing Pains: How to Make the Transition from an Entrepreneurship to a Professionally Managed Firm. Jossey - Bass Publishers, San Francisco, 1990, pp. 53-54.

Figure 9-3 Causes of Organisational Growing Pains[438]



Many differing views are on the number of stages and what characteristics they have. However, the table in Appendix-N shows in the first column an aggregated life-cycle model that gives an indication of what is to be expected at each stage.

9.6 Conclusion

There is a considerable relationship between a firm's age and likelihood of bankruptcy. This relationship is an indicator of causal relationship, like underfinancing, inexperience, diminished interest of founder and so on. There is also an established relationship between macroeconomic variables like interest rate, deregulation of industries, recession and increased competition intensity, and failure.

It is important to distinguish between the symptoms and causes of failure. Symptoms of failure as represented by deteriorating financial ratios has had relatively high profile in the academia, while research on the actual causes has lagged behind. The causal relationship is complex and dynamic.

Most researchers on failure as well as specialists, like venture capitalists and company 'doctors' agree on general management being the main cause of failure. The literature provides, however, few well established systematically researched conclusions on what constitutes 'bad' management. Argenti provided explanations, but they lack adequate confirmation by research.

The most frequently cited causes of failure are (i) improper pricing; (ii) high gearing; (iii) insufficient working capital; (iv) over-dependence on one customer; (v) management inexperience; (vi) unbalanced top team; and (vii) inadequate control systems. Company insolvency specialists have cited inadequate participation of non-executive directors as a leading cause of company problems escalating out of hand.

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[438]Op. cit. (Flamholtz), p. 48.

A number of studies have been conducted on what characterises successful companies. Such studies usually lack rigour in research design making their conclusions obsolete as soon as some of the 'successful' companies become 'unsuccessful' although they still apply the apparent 'successful ways'. This implies that researchers have not discovered any underlying principles of success.

The PIMS Program has come up with number of findings, but one of the most important ones is that relative quality is highly important and one of the foundations of low market-share businesses earning profits. Furthermore, the program does not look at market-share as cause of profitability on its own, but rather that a combination of features like high quality and low cost bringing about increases in market-share, which in-turn will increase profits further.

Growth plays an important role in failure. As very fast growth will outstrip the company of its resources, especially, financial resources.

Management's personal traits are an important factor in company failure. The problem of facing the failure sometimes leads to 'blocking' that sinks the company deeper into problems before help is sought. Personal factors like lack of education, lack of experience, too much self-reliance, jumping to conclusions (lack of analysis) and problem denial, are all factors that contribute to failure.

A German study found a convex relationship between founder age and deregistrations. Thus, initiations of companies seem to be for different reasons and affected by different factors and intensity according to founder age. The physical or mental relationship between age and company mortality has not been established.

Corporations seem to go through a life-cycle, although, decline can sometimes be avoided or companies revitalised. The life-cycle concept is important as it shows that fewer and fewer companies exist in a population established at a given year, as time passes. The, theory, does not prove, however, that all companies or organisations for that matter will eventually die. In fact a company having perfect ability to adapt to its environment will survive indefinitely, although, such company may not necessarily exist in reality. Furthermore, an adaptable company may be engaged in a totally different business after 50 years from foundation.

10. Failure Prediction Models

10.1 Empirical Research On Failure Prediction

10.1.1 Introduction

What is the purpose of constructing a failure prediction model, one may ask. A failure prediction model can be used by financial institutions in order establish the viability of making a loan to a specific company or to assess the financial health of a company in order to calculate the likelihood of recovering the loan. Furthermore, prediction models can be used as a warning system in order to initiate change or pro-active turnaround. The latter case is where the problems start. If a empirically derived failure prediction model indicates that a company is highly likely to fail, the very same model does not indicate in any way 'what' has gone wrong, as the model is based on financial ratios that are symptomatic rather than causal by nature. Examples are known were managers with such knowledge have tried to improve the ratios in various ways without addressing the real problems. There are also examples of the use of failure prediction models to focus managers' attention on the real problems.[439] As a result, it is of much interest whether models can be developed that are based on variables that are more indicative as to the cause of firms' problems or wellbeing.

10.1.2 Theory Formulation

Failure prediction models are in most cases purely empirical and lack theory on which the selection of predictive variables is based. Robertson suggested anterior determinants of failure: trading stability, declining profits, declining working capital and increase in borrowings. He suggested also market share patterns as indicators of company health: market size, market share variance and market share in relation to growing, stagnant or shrinking market.[440]

Many unobservable factors exist that influence the vulnerability of an individual firm, which is a drawback of any methodology used to model a phenomenon with limited data. These factors may include the unmeasured qualities of assets, the ability of management to perform well under new and adverse circumstances, random events in either the internal or external environments, and activities of regulators and courts of law. An econometric model containing only financial statement information would

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[439] Edward I. Altman, Corporate Financial Distress and Bankruptcy, 2nd ed., John Wiley & Sons, Inc., pp. 272-277.

[440] J. Robertson, Research Directions in Financial Ratio Analysis, Management Accounting, 1984.

not provide highly accurate classification of failed and non-failed firms. Martin, discussing bank failure, recognised this fact:

> **These excluded variables (most of which cannot be directly observed) determine how vulnerable, in terms of the included variables, a bank would have to be in order to fail'.**[441]

Zavgren reinforces Martin's conclusion in her research:

> **These factors determine for each firm a critical level of vulnerability, or a 'tolerance for vulnerability,' above which the firm will fail.**[442]

The classification error of failure prediction models can be explained partially by the fact that company's are dynamic identities that can at any time return to profitability due to management change process or extraordinary circumstances. In view of that fact there will always be misclassification. This is not pertinent to the statistical process as it takes into account only misclassification of companies that are actually non-failed and failed.

10.1.3 The Use of Ratios

The financial ratios applied in most of the studies differ as each sample set has differing characteristics. However, the use of ratios as such is important to control for the systematic effect of size on the variables under observation. The control of size is for two main reasons; (i) to control for the increased size of individual components of the ratio over the years, like increase in equity; and (ii) to fulfil the requirements of the statistical technique employed.[443]

There is relatively little conformity on what ratios are the best indicators of failure as Table 10-1, indicates. The studies cited in the table show that the sample drives the selection of ratios in such a way that only two identical ratios are used in more than two models and six ratios are used in two models.

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[441] Daniel Martin, Early Warnings of Bank Failure, Journal of Banking and Finance, 1977, p. 257.

[442] Christine V. Zavgren, The Prediction of Corporate Failure: The State of The Art, Journal of Accounting Literature Vol. 2, 1983, p. 25.

[443] Baruch Lev and Shyam Sunder, Methodological Issues in The Use of Financial Ratios, Journal of Accounting and Economics, Vol. 1, 1979, pp. 187-188.

Table 10-1 Occurrence of Ratios Used in Failure Prediction in Five Studies[444]

Ratio	*Frequency*	*Study*
Cash flow[445]/total debt	3	Deakin, Beaver, Blum
Quick assets[446]/current liabilities	3	Deakin, Zavgren, Edmister
Cash/total assets	2	Deakin, Zavgren
Current assets[447]/current liabilities[448]	2	Blum, Zavgren
Inventory/sales	2	Zavgren, Edmister
Net income/total assets	2	Ohlson, Deakin
Total debt/total assets	2	Beaver, Deakin
Current assets/total assets	2	Beaver, Ohlson
Working capital[449]/total assets	1	Deakin
Cash/current liabilities	1	Deakin
Cash/sales	1	Deakin
Current assets/sales	1	Deakin
Current liabilities/current assets	1	Ohlson
Current liabilities/equity	1	Edmister
Debt/total capital	1	Zavgren,
Dummy variable for total assets > total liabilities	1	Ohlson
Earnings before interest and taxes/total assets	1	Altman
Equity/sales	1	Edmister
Funds flow/current liabilities	1	Edmister
Funds from operations/total liabilities	1	Ohlson
Log (total assets/GNP price level index)	1	Ohlson
Market value equity/book value of total debt	1	Altman
Net income/total assets	1	Beaver
Net quick assets/inventory	1	Blum
Net working capital/sales	1	Edmister
No credit interval	1	Beaver
Quick assets/sales	1	Deakin
Quick assets/total assets	1	Deakin
Quick flow ratio	1	Blum
Rate of return to equity	1	Blum
Receivables/inventory	1	Zavgren
Retained earnings/total assets	1	Altman
Sales/net plant	1	Zavgren
Sales/total assets	1	Altman
Total income/total capital	1	Zavgren
Total liabilities/total assets	1	Ohlson
Variability and trend of net income	1	Blum
Variability and trend of net quick assets/inventory	1	Blum
Working capital/sales	1	Deakin
Working capital/total assets	1	Deakin

Beaver came up with a theory of ratio analysis based on a cash-flow model which was employed to explain the results of the ratio test. He looked at the company as a system of inflows and outflows and defined the solvency of a firm to be when the

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[444]Sources: Deakin, Edward B., A Discriminant Analysis of Predictors of Business Failure, Journal of Accounting Research, Spring 1972, pp. 167-179. Beaver, W., Financial Ratios as Predictors of Failure, Empirical Research in Accounting: Selected Studies, 1966, supplement to vol. 5, Journal of Accounting Research, pp. 71-111. Edmister, R., An Empirical Test of Financial Ratio Analysis for Small Business Failure Prediction, Journal of Financial and Quantitative Analysis, March 1972, pp. 1477-1493. Blum, M., Failing Company Discriminant Analysis, Journal of Accounting Research, Spring 1974, pp. 1-25. James A. Ohlson, Financial Ratios and the Probabilistic Prediction of Bankruptcy, Journal of Accounting Research, Vol. 18 No. 1, Spring 1980.

[445]Net cash flow: Profit after tax plus depreciation plus increases in deferred tax minus dividends.

[446]Quick assets: Current assets less stock.

[447]Current assets: Stock, debtors and cash.

[448]Current liabilities: Liabilities due for payment within one year following the balance sheet data.

[449]Working capital: Current assets less current liabilities.

outflows exceeded the inflows.[450] As a result of this framework he put forward the following cash-flow based propositions:

1. **The larger the reservoir, the smaller the probability of failure. [applies to liquid assets]**
2. **The larger the net liquid-asset flow from operations (i.e., cash flow), the smaller the probability of failure.**
3. **The larger the amount of debt held, the greater the probability of failure.**
4. **The larger the fund expenditures for operations, the greater the probability of failure.** [451]

The propositions lack the element of relativity as he states 'amount' rather than 'proportion' to some indicators like sales. This is of course established with the ratios in his analysis but should be emphasised in the propositions as well. Beaver in his study and Blum in a separate study both apply cash-flow based theories to their ratio analysis.[452]

Ratio analysis does have its pitfalls that are important to address in any research using that methodology. Morley talks about five main dangers: (i) ignorance of accounting policies; (ii) disregarding of the unique characteristics of the industry; (iii) improper comparisons; (iv) technical errors in constructing ratios; (v) and relying exclusively on ratios.[453] The first point, ignorance of accounting policies constitutes, for example, comparison of firms: using different accounting policies, from different countries, applying different depreciation schedules and so on. The second point does not apply to this project as the comparison is only on airlines in the USA. The third, point does not apply as the comparison will only be in terms of probability of failure and not a comparison of the financial ratios themselves. The fourth, pitfall is basically to observe what should be used as numerator and denominator during calculations. The fifth point, is not to rely exclusively on ratios but to research the accounts to check for possible 'window dressing', which involves major transactions just before the balance sheet date.[454]

Non-financial ratios have been used in number of failure prediction models but are usually pseudo-financial or accounting procedure linked. Keasey and Watson tested 18 non-financial variables and found that companies with few directors, longer than average submission lags of financial statements and had secured loans held by banks, were more susceptible to failures. Furthermore, companies were more likely to fail if

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[450] Op. cit. (Beaver), p. 79-80.

[451] Op. cit. (Beaver), p. 80.

[452] M. Blum, Failing Company Discriminant Analysis, Journal of Accounting Research, Spring 1974, pp. 1-25. Blum applies theory to his ratio analysis based on cash-flow.

[453] Morley, Michael F., Ratio Analysis, Gee & Co Ltd, 1984, p. 35.

[454] Op. cit., Morley, p. 35–43.

they had received an audit qualification in their last report.[455] On the basis of Keasey and Watson, Innes, Aitken and Mitchell derived a set of non-financial variables along similar lines.[456] The non-financial variables employed in the above models do not address the underlying causes of failure but address symptoms like the financial ratios. In that regard the findings are of limited value if one excludes the possible increase in failure predictability.

There is one question that remains to be answered, why one does not simply refer to analysis of the means of ratios for segregating a sample of firms into the two groups failed and non-failed? To answer this can refer to Beaver[457] and Altman[458], two of the early researchers in field of bankruptcy prediction. Beaver used univariate ratio analysis to classify corporations into failed and non-failed groups. Altman, on the other hand, concluded that the univariate approach would not provide comprehensive profile of the firm when each individual ratio was assessed independently. Multiple linear discrimination (MDA) on the other hand combined those ratios, having optimum discrimination powers, into a single formula that could be used to predict bankruptcy of non-sample companies. In that sense MDA and logistic regression analysis are superior to univariate analysis.

In view of the reasoning above, discrimination models, are superior to simple analysis of the means, taking into account the more complex relationship of the variables and returning this relationship in near optimum discrimination function. The statistical methodology of failure prediction will therefore be analysed in the next section.

10.1.4 Statistical Methodology

The first attempts to develop a statistically based model to distinguish between failed and non-failed companies for the purpose of making inferences about non-included individuals were by Beaver using Univariate Ratio Analysis (URA) in 1966 and Altman in 1968 using multiple Discriminant analysis (MDA). Some research on the subject appeared prior to World War 2. Two of those showed differing ratio measurements for failed and non-failed companies.[459]

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[455]Keasey and Watson, Non-Financial Symptoms and the Prediction of Small Company Failure: A Test of Argenti's Hypotheses, Journal of Business Finance and Accounting, Autumn 1987, pp. 335-354.

[456]Innes, John., Colin Aitken and Falconer Mitchell, Prediction of Small Company Failure, Credit Management, September 1991, pp. 37-42. This article is a description of a pilot project and results therefore not fully developed.

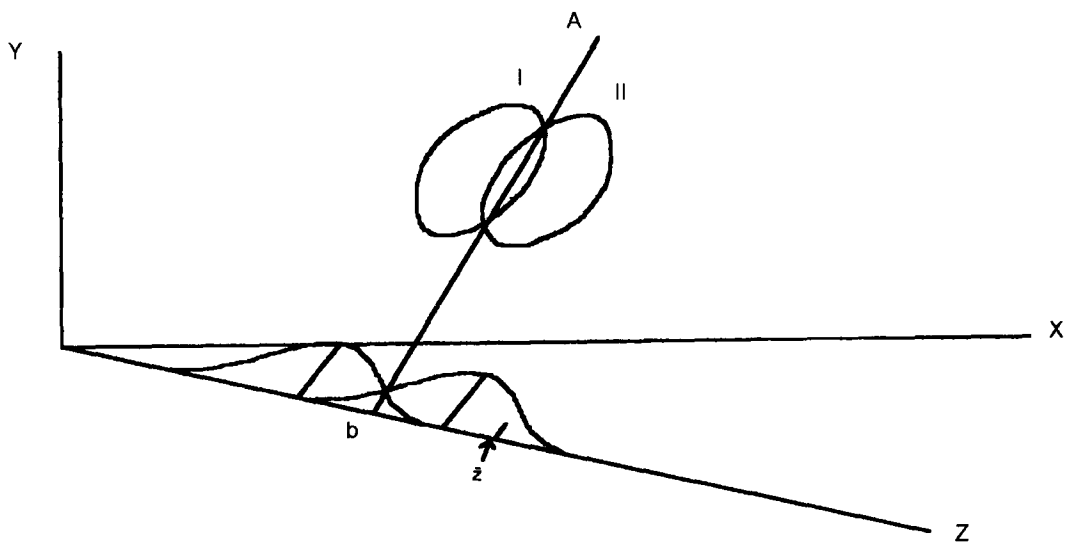
[457] William Beaver, Financial Ratios as Predictors of Failure, Journal of Accounting Research, Jan 1967, Vol. 5, pp. 71-111.

[458]As reported in C. V. Zavgren, The Prediction of Corporate Failure: The State of The Art, Journal of Accounting Literature, Vol. 2, 1983, p. 15.

[459]Cited in Altman(1968) p. 590: R.F. Smith and A. H. Winakor, Changes in the Financial Structure of Successful Corporations., University of Illinois: Bureau of Business Research, 1935., and C. Merwin, Financing Small Corporations, New York: Bureau of Economic Research, 1942.

Beaver used a matched sample of 158 companies 79 failed and 79 non-failed to construct a URA model. This use of matched samples is frequent in financial ratio analysis for corporate bankruptcy prediction in order to reduce the bias caused by dissimilarity between companies in the sample in terms of size, geographic location, turnover and industry category. The URA method was applied in the way of arranging the 30 ratios for the firms segregated by the dichotomous variable. Then he visually determined the cut-off point that minimised the percentage of incorrect predictions.[460] As mentioned before, this methodology lacked in terms of representing complex relationship between the variables under observation. This apparent lack was addressed by Altman in his research. Altman pioneered the use of Multiple Discriminant Analysis (MDA) to distinguish between failed and non-failed companies in 1968. MDA is a statistical method used to distinguish between dichotomous variables, failure versus non-failure in our case. The variables in this model were based on financial ratios. For further account on ratios and their selection please see Section 10.1.3.

Figure 10-1 MDA Statistical Methodology[461]



The MDA concept is described in the plot in Figure 10-1, that was presented by Edminster. It shows a group of data segregated into two groups, failed (*I*) and non-failed companies (*II*). The two variables X and Y are positively correlated, thus, intersecting at A. Z is drawn perpendicular to A. The points in the X and Y space can then be projected to Z and the resulting Normal Curve shows the overlap between the two distributions. Point b segregates the space into two regions whose probability is membership in either group I or II. The Discriminant function is represented by $\bar{z}$ that is located on Z.

Altman's sample was composed of 66 manufacturing companies that were segregated into two groups failed and non-failed. The firms in the sample were operating in the

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[460] Op. cit.(Beaver), pp. 83-85.

[461] Source: Robert O. Edminster, An Empirical Test of Financial Ratio Analysis for Small Business Failure Prediction, Journal of Financial and Quantitative Analysis, March,1972, p. 1483.

US during 1946 to 1965 and half of those had filed for bankruptcy under Chapter 10 of the National Bankruptcy Act and had mean asset size of $6.4 million ranging from $0.7 to $25.9 million. The sample was paired, recognising the differences in asset size and industry, using stratification based on size and industry. The data was derived from financial statements one year ('reporting period') prior to bankruptcy.[462]

Altman included twenty two ratios from which five were finally selected as the greatest discriminators of the dichotomous dependent variable.

The model took the form

$$\mathbf{Z = .021X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5} \qquad (10\text{-}1)$$

where **Z** is the overall index and $\mathbf{X_1}$ is Working Capital/Total Assets, $\mathbf{X_2}$ Retained Earnings/Total Assets, $\mathbf{X_3}$ Earnings Before Interest and Taxes/Total Assets, $\mathbf{X_4}$ Market Value of Equity/Book Value of Total Debt, and $\mathbf{X_5}$ is Sales/Total Assets.

These ratios were empirically selected from the set of twenty two as the best discriminators of the dichotomous variable. In evaluating the statistical significance of the Discriminant function Altman used: (i) traditional evaluation of the statistical significance; (ii) intercorrelation among the discriminating variables; (iii) predictive accuracy of the Discriminant function; and (iv) researcher's judgement.[463]

The principal aim in failure prediction is to reduce the misclassification error of the models in order to increase the predictability of the model. This feature of the models can be tested on a hold out sample that represents a similar characteristics as the sample on which the model is based.

A summary by Zavgren, appears in Table 10-2, that shows the classification error of Altman's model increases three years prior to failure, in comparison to the rest of the models. However, Deakin's probabilistic model shows better results in terms of misclassification, especially more than one year from failure. Wilcox reported good results as well based on his theoretical Gambler-ruin model, discussed in Section 10.3, having 24 percent overall error rate five years prior to failure, while Altman's model had 64 percent, Beaver's 22 percent, Deakin 17 percent and Blum 17 percent.

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[462] E. Altman, Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy, The Journal of Finance, Sept. 1968, pp 589-609.

[463] Op. cit.(Zavgren), p. 16.

Table 10-2 Misclassification Rates of Representative Bankruptcy Prediction Studies[464]

Meth.	Beaver Univariate			Altman MDA			Deakin Prob. MDA			Diamond Pattern-recogn.			Wilcox Gambler-ruin[465]			Blum MDA[466]	
Years prior to failure	*(1) Overall*	*(3) Type I*	*II*	*Overall*	*(2) (3) Type I*	*II*	*(4) Overall*	*Type I*	*II*	*Overall*	*(5)(6) Type I*	*II*	*(7)*	*(8)*	*(9)*	*Overall*	*(1) (10) Type I*	*II*
		%			%						%		%				%	
	(13%)	22	5	(27%)	(4)	(21)	(22%)			(9%)	(3)	(10)				(5%)	(4)	(7)
1	10%			5%	6	3	3%	3	3				6	17	12	7%		
	(21%)	34	8				(6%)			(15%)	(21)	15)				(20%)	(16)	(24)
2	18%			18%	28	6	4½%	3	6				10	12	18	12%		
	(23%)	36	8				(12%)			(20%)	(20)	(20)				(30%)	(29)	(32)
3	21%			52%	-	-	4½%	6	3				12	21	22	20%		
	(24%)	47	3				(23%)									(20%)	(12)	(26)
4	24%			71%	-	-	21%	16	25	-	-	-	10	14	25	14%		
	(22%)	42	4				(15%)									(31%)	(33)	(29)
5	22%			64%	-	-	17%	25	9	-	-	-	24	30	28	17%		

(1) Figures in parentheses test against holdout sample. Figures not in parentheses are tested against same sample from which dichotomous classification test was estimated.
(2) Type I error is misclassifying a failed firm. Type II error is misclassifying a non-failed firm.
(3) Type I and II errors were only presented for the first two years.
(4) Figures in parentheses represent test against randomly selected sample. Figures not in parentheses represent test against sample from which discrimination function was estimated.
(5) Results from using the Discriminant plane with Bayesian predictor. Prior probabilities of failure and non-failure are set at 10% and 90%, respectively, and cost of Type I errors assumed to be 38 times the cost of Type II error.
(6) Figures in parentheses indicate validation was performed against an (n-1) holdout sample.
(7) Reported by Wilcox. Type I and II errors were not reported.
(8) Replication by Kinney using a restricted subset of data.
(9) Discriminant analyses conducted by Kinney on Wilcox's data.
(10) Error rates based on Discriminant function for four years of data.

In the years following Beaver's and Altman's work, an ongoing process took place where attempts were made to improve the predictability of the models. In 1977 Altman, Haldeman and Narayanan published an improvement of Altman's original model. In the new model fifty three bankrupt and fifty eight non-bankrupt firms were used, of those, sixty one were manufacturing firms and fifty were retail firms. It is worth attention that the model mixes two industries, a practice that must be considered controversial in bankruptcy prediction. Classification accuracy rose considerably from the previous model. The overall classification error for the linear model was 7.2 percent one year prior to failure, 11 percent for the holdout sample two years prior to failure, 16.5 percent for the holdout sample three years prior, 20.2 percent for the holdout sample four years prior and 23.2 percent for the holdout sample five years prior to failure.[467]

Edminster reached quite good results in his model that utilised dummy variables to indicate upward or downward trend in ratios. Thus, requiring three consecutive

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[464] Source: Christine V. Zavgren, The Prediction of Corporate Failure: The State of Art, Journal of Accounting Literature, Vol. 2, 1983, p. 4.

[465] Update of the original model based on linear gambler's ruin model where the score is defined by 10X + N, which indicated a firm's distance from the best diagonal line in X N space.(Source: Altman ,1993, p. 234)

[466] Blum did not utilise searching to determine the ratios for the prediction model. He used a concept of ratio selection like Beaver based on the firm being 'a reservoir of financial resources with the probability of failure being expressed in terms of expected cash flows.' (Source: Altman 1993, p. 224.)

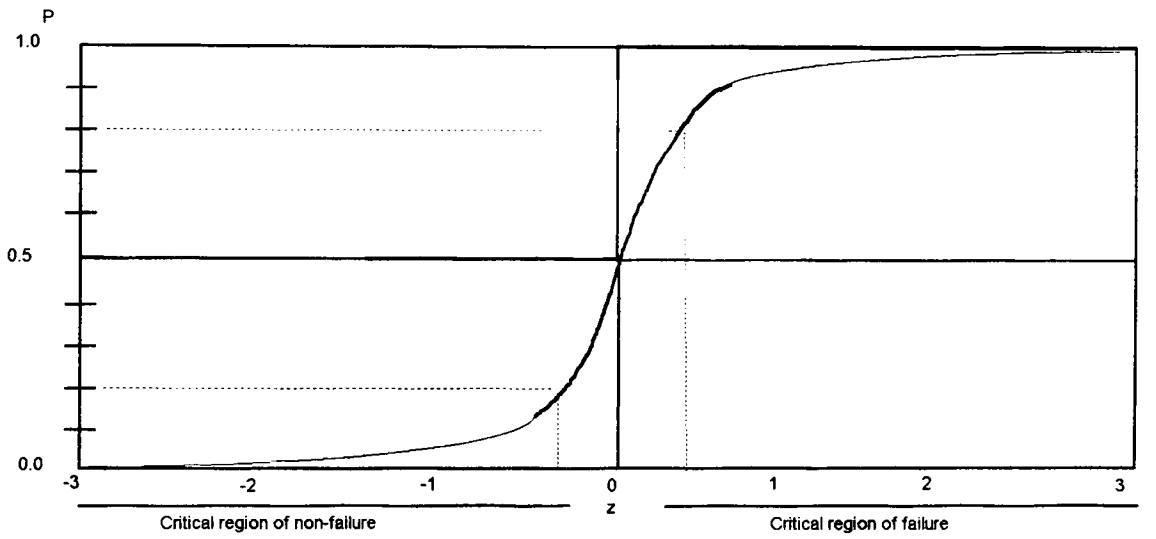
[467] Altman, Edward I., Robert G. Haldeman and P. Narayanan, Zeta Analysis: A new model to identify bankruptcy risk of corporations, Journal of banking and finance, Vol. 1, p. 38.

financial statements to predict failure, while Altman, Beaver and Blum concluded that only one was needed.

10.1.5 The Logistic Regression Methodology

The third frequently used statistical method for failure prediction is Logistic Regression Analysis (LRA). It estimates a logistic regression equation and then uses a critical level of Z to distinguish between the two classes: failed or non-failed. Collins and Green find the logistic method to have much more theoretical appeal to bankruptcy prediction, than MDA. One of the reasons, according to them, is that the logistic cumulative distribution function is a 'sigmoid curve' (S-curve) that has the 'threshold' trait that bankruptcy forecasting problem logically needs. Furthermore, they mention the fact that the LRA formulation is more robust to distribution assumptions due to the possibility of several distribution assumptions.[468]

Figure 10-2 LRA Methodology



The determination of the 'threshold' is important, as if the probability score falls along the lower bend of the curve, p (0 to .2) the probability of failure is practically zero, however, if the score passes the bend and falls along the growth section of the curve, p (0.2 to 0.5), the probability of failure increases dramatically. There is, however, little increase in the probability of failure as the change in the ratio falls along the upper bend of the curve p (0.8 to 1). Thus, the 'breaking' point falls somewhere in the middle of the growth section of the curve p (0.5), for example.

The logistic regression function produces a Z value that is transformed by the probability function into a probability. The Z is the linear combination of the resulting model. The function takes the form,

$$p(\text{failure}) = \frac{1}{1+e^{-z}} \qquad (10\text{-}2)$$

where,

$Z = B_0 + B_1 X_1 + B_2 X_2 + \ldots\ldots\ldots + B_p X_p$

e = 2.718 (the base of the natural logarithms)

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[468]Collins, Robert A. and Green, Richard D., Statistical Methods for Bankruptcy Forecasting, Journal of Economics and Business, Vol. 34, p.351-352.

Logistic regression, applied to failure prediction, has the advantage of having few of the problems of MDA analysis. Ohlson states, nevertheless, that certain discipline in data collection has to be adhered to. For example, the data has to be available prior to failure so that the model can be evaluated realistically.[469]

Many deviations, additions and improvements have occurred in the methodology described in this section, too many to cover in this thesis. The basic conclusion has to be, though, that these advances have not moved the understanding of failure processes much, but rather improved the statistical methodology in segregating the two states in the dichotomous variable.

Due to the good statistical qualities of the probabilistic MDA, through the Logistic Regression technique and good reported results by Deakin and other researchers, it was decided to use that technique for model construction in the thesis.

10.2 Alternative Failure Prediction Models

10.2.1 Catastrophe Theory

The Catastrophe Theory (CT) is an attempt to describe, in mathematical terms, a discontinuous behaviour in a system. The theory is an approximation of an situation where a continuous change in independent variables causes a discontinuous change in the dependent variable. The theory has been applied to corporate bankruptcies by Scapens et al., Francis et al and Gregory-Allen and Henderson. The first study used CT to show the relationship between accounting data and behavioural responses of creditors. Their results showed CT's explanatory ability rather than predictive capacity and that variable identification was crucial but problematic. The second study included exogenous forces on the model and is unlike other CT bankruptcy studies for that sake. In other terms the two studies yield similar models and results.[470] The third study was based on Francis and concluded that there was a strong indication of parameter shift and that the presence of the shifts along with heteroscedasticity is consistent with CT.[471]

All models are composed of one 'state' variable (X), one 'normal' variable(N) and one 'splitting' variable(S). The selection of only three variables is according to the 'cusp' model that requires all selected variables to be collapsed into the three main variables. The three variables define the three dimensional space within which the system behaves.

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[469] Op. cit. (Ohlson) p. 113.

[470] Scabens, Robert W., Robert J. Ryan, and Leslie Fletcher, Explaining Corporate Failure: A Catastrophe Theory Approach, Journal of Business Finance and Accounting, Vol.: 8, Spring 1981, pp. 1 -26., and Francis, Jack C., Harold M. Hastings and Frank J. Fabozzi, Bankruptcy as a Mathematical Catastrophe, Research in Finance, Vol. 4, 1983, pp. 63-89.

[471] Gregory-Allen, Russell B. and Glenn V. Henderson, Jr., A Brief Review of Catastrophe Theory and a Test in a Corporate Failure Context, The Financial Review, Vol. 26, No.2, May 1991, pp. 127-155.

The Catastrophe Theory is an important addition to the bankruptcy prediction methodology although it does not add to the understanding of the failure process.

10.2.2 Neural Networks

Neural nets were proposed and researched as early as the 50s and 60s but were at that time found to be limited due to their limited learning ability. Advancement in the field has caused increased interest in the applicability of such networks for number of differing fields, among those is corporate failure prediction.[472]

The neural net is composed of interconnected computation devices that can be represented as mathematical functions. Rumelhart et al., proposed the following function[473]

$$I_i = \sum_j w_{ij} o_j + \phi_i \quad (10\text{-}3), \qquad \text{and} \qquad O_i = \frac{1}{1 + e^{-I_i}} \quad (10\text{-}3)$$

where

I_i = input of unit i,
O_i = output of unit i,
w_{ij} = connection weight between unit i and j,
ϕ_i = bias of unit i.

The function works as described by Tam and Kiang: 'A unit i receives input signals from other units, aggregates these signals based on input function I_i , and generates an output signal based on an output function O_i (sometimes called a transfer function). The output signal is then routed to other units as directed by the topology of the network.'[474]

Table 10-3 Comparison of Misclassification Rates of Various Models[475]

		%					
		One-year Prior			*Two-year Prior*		
Model	*Type*	*I*	*II*	*T*	*I*	*II*	*T*
DA	Multivariate Discrimination Analysis	18.2	13.6	(15.9)	30.0	5.0	(17.5)
Logit	Logistical Regression Analysis	31.8	4.5	(18.2)	15.0	0.0	(7.5)
1NN	k Nearest Neighbour	40.9	4.6	(22.8)	20.0	25.0	(22.5)
3NN	k Nearest Neighbour	36.4	9.1	(22.8)	30.0	10.0	(20.0)
ID3	Decision Tree	22.7	18.2	(20.5)	40.0	5.0	(22.5)
Net_0	Neural Network no hidden units	31.8	4.5	(18.2)	20.0	12.6	(16.3)
Net_{10}	Neural Network 10 hidden units	18.2	11.4	(14.8)	2.5	20.0	(11.3)

Tam and Kiang found in a misclassification test on a hold-out sample of 44 banks (22 failed and 22 non-failed) in one and two year periods, that the neural net remained the best classifier in terms of few type II errors and total errors. This can be observed in

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[472] One development was the back propagation learning algorithm to train a multilayered network that can reproduce the XOR function.

[473] Source as reported in: Kar Yan Tam and Melody Y. Kiang, Managerial Applications of Neural Networks: The Case of Bank Failure Predictions, Management Science, Vol. 38, No. 7, July 1992, p. 929

[474] Op. cit. (Tam and Kiang), p. 929.

[475] Op. cit. (Tam and Kiang), p. 940.

Table 10-3, where the Neural-Network representing 10 hidden units achieved the second lowest total error rate of 11.3 percent, compared to a low 7.5 percent of the Logistic Regression model applied on the same data.

Now that empirical and artificial intelligence models have been explored, it is not out of the way to examine, perhaps the most important source of models, those based on theory.

10.3 Theoretical Models Failure Models

10.3.1 Introduction

There are number of simple theoretical models that have been developed on corporate failure. A simple model cited by J. Scott assumes that a firm goes bankrupt if its debt exceeds the liquidation value, stated as

$$D_1 > V_1 \qquad (10\text{-}4)$$

where, D_1 is the debt and V_1 is a random variable of the firm's value at a end of period.[476]

Thus if the bankruptcy is specified on the Normal Curve the firm will go bankrupt if

$$\frac{D_1 - \mu_v}{\sigma_v} > \frac{V_1 - \mu_v}{\sigma_v} \qquad (10\text{-}5)$$

where μ_v is a location parameter, and σ_v as scale parameter.

The gamblers ruin models proposed by Borch,[477] Tinsley,[478] Wilcox,[479] Santomero and Vinso[480] is based on a capital variable that changes randomly according to positive or negative effects on the firm's cash flow from operations. When the firm encounters negative effect on K it has to liquidate assets until K becomes negative at which stage it goes bankrupt, stated as

$$\frac{\mu_z + K}{\sigma_z} \qquad (10\text{-}6)$$

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[476] James Scott, The Probability of Bankruptcy: A Comparison of Empirical Predictions and Theoretical Models, Journal of Banking and Finance, Vol. 5, 1981, p. 326.

[477] K. Borch, The theory of risk, Journal of the Royal Statistical Society, Series B, 1967.

[478] P. Tinsley, Capital structure, precautionary balances, and valuation of the firm: The problem of financial risk, Journal of Financial and Quantitative Analysis, 1970.

[479] J. Wilcox, A Gambler's ruin prediction of business failure using accounting data, Sloan Management Review, Spring, 1971.

[480] Santomero, A and J. Vinso, Estimating the probability of failure for firms in the banking system, Journal of Banking and Finance, Sept. 1977.

where K is the stockholder's equity and μ_Z the mean and σ_Z the standard deviation of the next period's change in retained earnings.

Models with perfect access to external capital assume that stockholders do not need to sell assets in order to meet losses but can sell debt or equity instead. Thus stated as

$$\frac{\mu_x + S}{\sigma_x} \qquad (10\text{-}7)$$

where S is the market value of equity and μ_X is the mean, and σ_X the standard deviation of next period's net income.

If the firm has imperfect access to external capital, the model takes the form

$$\frac{\mu_x + \Delta K + S/(1+c)}{\sigma_x} \qquad (10\text{-}8)$$

where ΔK is the optimal change in stockholders' equity, given that the firm is faced with earnings losses, and c is the proportional flotation costs. The hindering of perfect access to capital, according to Scott, may be based on the costs incurred when floated or personal tax system that favours internally funded corporate investments.[481]

As can be detected from the models discussed, theoretical based failure prediction models are based on financial factors exclusively and do not, therefore, address the underlying causal factors. Such models are apparently less useful than empirically based models to predict bankruptcy.

10.4 Discussion

10.4.1 Empirical Failure Prediction Models

The main criticism of Altman's model has been its limitation in terms of prediction ability more than two years before failure. This could be considered limited predictability, in view of the fact that most analysts will already have detected all the signs of imminent failure or turnaround necessity by then. Furthermore, as is with most failure prediction models it is not based on theory. Therefore, it has limited use in turnaround situations as deterioration in financial ratios represents symptoms rather than causes of decline and eventual failure. In addition, the model is based on published accounts that may have been polished through creative accounting, especially in failing firms. This criticism applies, however, to all models based on financial ratios.

There are number of problems with the application of Discriminant analysis to failure prediction according to Eisenbeis: (i) the variables used in the model are assumed to

[481] Op. cit. (Scott), p. 332.

be multivariate normally distributed, although, it is more likely that deviations from normality is more frequent than not; (ii) group dispersion matrixes have to be equal across all groups; if this assumption is relaxed it will affect the significance test for the differences in group means; (iii) the Discriminant model does not allow the determination of the relative importance of the variables, as the output is simple ordinal ranking;[482] (iv) the reduction of dimensions has limitations for the same reasons as stated in part 2, if the group dispersions are unequal; thus it may be unwise to reduce dimensions or variables if classification[483] is the primary goal of the model. The effect must be established and the decision of keeping or dropping variables and dimensions must be related to the efficiency of the classification.[484]

In spite of the advantages of logit regression for bankruptcy prediction it has been found to provide little advantage in terms of increased predictability. It was found, though, to provide a modest increase in the overall classification and reduce substantially the type I error rate.[485] The reasons for this lack of the models predictive capability, although it is theoretically better than MDA: is the lack of theoretical basis on which failure prediction models are based, the already high prediction capability of existing models and, therefore, limited scope for improvement.

10.4.2 Theoretical Causal Models

Wilcox abandoned his functional model but constructed an empirical model based on the variables derived from the earlier model. The classification accuracy of his empirical model was very promising, but lacked verification, as it was not tested on a hold-out sample.[486] Theoretical models suffer due to their simplicity and use of superficial causal explanation of failure causes. This conclusion is based on their emphasis on financial variables, in lieu, of accepted academic view that the change in the financial variables are actually symptomatic rather than causal.

10.4.3 Alternative Failure Prediction Models

Catastrophe Theory has been criticised in its application to the social sciences on the basis of lack of understanding of the social phenomena itself rather than the

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[482] Some work has been done on the possibility of determining the importance of individual variables in Discriminant analysis. See Cooley and Lohnes (1962), (1971), Eisenbeis and Avery (1972), Joy and Tollefson (1975), and Mosteller and Wallace (1963).

[483] Dimension reducing methods have traditionally been concerned with the contribution significance of the variable to the statistics used to in testing hypothesis about the equality of group means. See Eisenbeis and Avery (1972).

[484] Eisenbeis, Robert A., Pitfalls in The Application of Discriminant Analysis in Business, Finance, and Economics, The Journal of Finance, June 1977, pp. 875-900.

[485] Op. cit.(Collins), p. 352.

[486] Op. cit.(Altman, 1993), p. 235.

mathematical theory.[487] This criticism has been rebuffed by other researchers claiming that the model does apply but has its weaknesses as any other mathematical method, requiring caution on behalf of the user.[488]

The Neural Network (NN) methodology has its shortcomings as to identifying the importance of individual variables in segregating the dichotomous variable. In addition the NN does not yield any symbolic formula as to its segregation function. This is not a limitation as to the evaluation of its prediction accuracy but more so if individual inputs need to be tested for significance. Furthermore, there is no method available to derive the network configuration for a classification task.[489]

10.5 Conclusion

Empirical failure prediction models gained acceptance in the 1960's. These models have, however, lacked theoretical foundation. Most empirical failure prediction models are based on financial ratios, but there is little conformity on what ratios to use and each model seems to come up with its own set of empirically selected ratios.

The most popular statistical method for failure prediction is Multiple Discriminant Analysis. That method makes more demand on the sample design than Logistics Regression Analysis that returns probability of failure instead of a Z value where a cut-off point has to be determined.

Most researchers have emphasised the improvement of the predictability of the models by using increasingly sophisticated statistical methods. It is unlikely that any great advancement will occur in these terms in the future based on the statistical methodology on its own. Further, advancement has to come from theoretical advancement in terms of actual causes of failure.

A number of alternative methods of failure prediction have been used, like Catastrophe Theory and Neural Networks. These models show some promise, but do not provide any increase in overall predictability. Furthermore, such models do not provide any advances in terms of explanation of causal factors of failure.

Simple theoretical models have been developed on corporate failure. These models suffer from too much simplicity and reliance on financial variables.

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[487] See Hector J. Sussmann and Raphael S. Zahler, A Critique of Applied Catastrophe Theory in the Behavioural Sciences, Behavioral Science, Vol. 23, Sept. 1978, pp. 383-389.

[488] See Terence A. Oliva and Christel M. Capdevielle, Critique and Comment: Sussmann and Zahler: Throwing the Baby Out with the Bath Water, Behavioural Science, Vol. 26, April 1981, pp. 153-162.

[489] Op. cit. (Tam and Kiang), p. 944.

Part IV.

Model Construction

In this part fundamental components of the failure prediction models' construction are presented. First, the questionnaire survey is described and its analysis presented in terms of differences of the means for the dichotomous variables. Secondly, the construction of models from the questionnaire survey and the new-entrants data-base is performed. Finally, the models are discussed in terms of the thesis and their application. In addition, opportunities for further research will be examined.

11. Questionnaire Results

11.1 Introduction

The purpose of the questionnaire survey was to provide means for using qualitative variables for construction of failure prediction models. A developed method was not found in the literature on bankruptcy research. As a result, it is hoped that the method presented here will provide some foundation for using qualitative variables in failure prediction.

11.2 Questionnaire Results

11.2.1 Questionnaire Construction

In Part I of the questionnaire, respondents were asked to state their degree of agreement or disagreement with statements on various aspects of organisation and management constructs on a five point scale. In Part II, the respondents were asked to indicate on a scale of 0 to 10, the importance managers placed on various factors: in the past, at the present and as expected in the future.

The reason for emphasising the rating of 'importance' of each factor was to distance the rater from the actual causes of 'non-failure' and 'failure'. This was done in order to prevent the manager from judging his own performance, as such measurement is bound to be biased, especially, in the face of losses or failure.[490] Thus, it was found highly appropriate to associate the importance placed on the factors with failed versus non-failed and loss-making versus non-loss making results in the airlines' operation.

The selection of variables to be tested in the questionnaires was based on number of sources. Factors of success and failure were partially based on empirically developed categorisation[491] that identified nine primary categories: Personnel-human resources, Strategic, Operations, Marketing, Production-manufacturing, Management, MIS-data processing, External-environmental and Communications. To facilitate identification with categories used throughout this theses the following categories, based on Cowan, were used: *Personnel-human resources*, *Strategic*, *Operations*, *Marketing*,

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[490] This believe of managers' willingness to justify their actions or seek explanations from the environment situation for losses or failure, is clearly apparent from the literature (see Chapter 9).

[491] David A. Cowan, Developing A Classification Structure of Organisational Problems: An Empirical Investigation, Academy of Management Journal, 1990, Vol.33, No.2, 366-390.

Management, *MIS-data processing*, *External-environmental* and *Communications and Production-manufacturing*. In the thesis presented here, Personnel-human resources was collapsed into *management*, MIS-data processing and Communications was combined into *information- and communication system* and Production-manufacturing became *operations*. Gowan came up with 17 additional categories which are omitted here as their occurrence is infrequent. For detailed chronology of each test item and its rudimentary reason for inclusion in the questionnaire is described in Appendix-I.

An important aspect of the questionnaire, that may render it unconventional was the necessity of its convenience for a statistical classification methodology. Furthermore, due to the small population of new-entrant airlines and time limitations it was not possible to produce a large scale pilot of the factors presented in the questionnaire. This resulted in rather large variable set geared towards the prevention of information loss. In order to reduce the variable set and find underlying factors, factor analysis was applied. To maximise the interpretability of the results two methods were selected. The first method was to divide the total variable set into the same groups as in the questionnaire; and the second method, was to select together all variables that could possibly be related. The factor analysis, however, was found to be unreliable as a basis for selecting variables into the discrimination models and was, as a result, not used for that purposes. The results are, nevertheless, important for data reduction in future research and are included in Appendix-K.

The purpose of the first part of the questionnaire was to investigate manager's attitudes on various items related to the management of a new-entrant airline. The second part had the purpose to assess the perceived importance of various factors also itemised by the Underlying Model of Analysis presented in Chapter 1. The third part was used for classification purposes of the two previous parts. In addition, many variables were added relating to revenue-classification, number of passengers carried, losses and profits and so on. One of the reasons for having two basic parts was to test whether there was a difference in terms of prediction quality of the two types of question formats.

Due to the possible sensitivity of the information that respondents provided, much emphasis was placed on confidentiality in the cover letter and introduction text and also to identify with an organisation (*Cranfield*) in order to facilitate the feeling of security and increase the response rate.

As mentioned before, two basic methods of attitude measurement were adopted, a Likert five point scale for Part I and a ten point numerical scale for Part II. Both of these methods are common in social research but subject to controversy like most attitude scales.

Hoinville et. al., conclude in a widely used book on survey research practice, that much literature is available on the advantages and defects of attitude scaling methods, but:

> **...since a rating scale is not a absolute measure of attitude but a way of placing people in relative positions on a dimension, there is no particular way of presenting scales that is intrinsically better than others. The object should be to find the way that discriminates most effectively between respondents.**[492]

Having this in mind and the characteristics of the task (discrimination) the selected scales were considered to suit it well.

The questionnaire includes mostly factors that could not be measured by other sources in order to add dimension to numerical data. This was deemed necessary due to the conformity in the literature that the main cause of failure is the management of the failed organisation. As a result, it must be the importance that the management has placed (a function of decisions) on various factors that makes or breaks a company. The questionnaire research is based on this presumption and the hypotheses that there is difference between the management as cause and other possible causes of failure like that of the environment.

The statements in Part I of the questionnaire were in the first instance based on the concepts of David Hall as presented in the book 'The Hallmarks for Successful Business.'[493] During the course of the questionnaire development these statements underwent changes and adaptation to the task at hand. The factors presented in Part II, were all developed on the basis of intuition, and literature research and comments on the pilot questionnaire.

The length of the questionnaire was a considerable issue, as a major pilot study for item reduction would take too much time and reduce the sample available for the final survey. Thus, it was decided to go ahead with the questionnaire in the form it was. The questionnaire can be considered to be of medium length, although, the answering process may have placed considerable demand on the rater's attitude to various issues. However, no statement or factor required information that was necessary to search for in company records. Please refer to Appendix-N for samples of the questionnaires and cover letters.

11.2.2 Sample Construction

A simple sample of new-entrant airlines was not considered adequate in this research due to the various backgrounds and the diversity associated to the new-entrants

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[492] Hoinville, Gerald and Roger Jowell. Survey Research Practice, Gower Pub. Co. repr. 1989, p. 35.

[493] Hall, David. The Hallmarks for Successful Business: Survival-Change-Growth. Mercury Books 1992.

under examination. Furthermore, it must be made clear that a sample was not actually drawn from from a population, but it was included as a whole. A stratified sample was necessary in order to recognise the differences in the origins of the jet[494] operating new-entrants, resulting in the identification of four populations: (i) *failed* new-entrants (failed new-entrant is an airline that has failed totally or called in the receivers or filed for Chapter 11[495]); (ii) *recently* established carriers of less than three years operating life before the survey (established in 1991 or later); (iii) *established* carriers that had been operating for more than three years when the survey was conducted (established before 1991); (iv) and specialists, that are observers of new-entrants (journalists, academics or consultants associated with aviation in general and/or new-entrant airlines). The four populations required four different questionnaire formats. Reason being that 'recent' new-entrants could not answer questions on the past, 'failed' new-entrants on the present and industry specialists on the airline specific questions in Part I of the questionnaire. Furthermore, the questions in the questionnaire for 'failed' new-entrants had to be worded in the past-tense.

New-entrant airlines included in the sample and associated managers were derived from two main sources, the Air Transport World's World Airline Report and the Flight International's World Airline Directory. Airlines included in the population were jet operating airlines established or expanding operations after deregulation of domestic market or bilateral route. This allowed cross-sectional analysis of new-entrants, meaning that the survey would give indications as to different importance of factors along the new-entrant's life-cycle (size). One executive from each functional area within each airline, was selected. This was a non-random selection of subjects, guided by the pre-set requirement of every subject being a member of the executive team of the airline. This led to the inclusion of all such managers listed in the named sources for most airlines. In few cases, where there was an alternative the more senior executive was chosen. As a result, the likelihood of at least one response from each airline was raised. By using this method each airline received 3 to 16 mailings to various individuals (average 7). The specialists were, however, selected on the basis of their association with issues relating to new-entrants, an association derived from written articles and listed specialisation in the World Aerospace Directory.

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[494]This criteria of jet operating new-entrants was to ensure comparability and to exclude plain feeder, and commuter airlines which operate under different philosophy than new-entrants serving general markets. General markets being interstate and international markets in particular. The comparability requirement is necessary to exclude financial structures and operating characteristics of smaller turboprop carriers which are quite different from all jet carriers. First of all sector distances are shorter for turboprop carriers in general, direct costs are higher, indirect costs are lower due to simpler overhead structure and ties with trunck carriers are usually effective by feeder agreements or plain ownership.

[495]In Chapter 2, there was a discussion on different definitions of failure, in this study, however, the following definition was adopted: An airline is considered failed if: (i) has filed for bankruptcy under chapter 11 (US), but keeps on operating; (ii) called in the receivers (UK); (iii) taken over by an other airline due to financial difficulties; (iv) ceases to operate due to bankruptcy; (v) ceases to operate without bankruptcy proceedings.

11.2.3 Response Statistics

The total number of respondents was 61, but two responses were rejected: one on the basis of being heavily positive biased compared to other responses from the same airline, and an other for being very incomplete. Fourteen responses were received from specialists that got a shorter version of the questionnaire containing only Part II[496], and forty five responses were received from airline managers at 26 airlines in the United States and Europe.

The average response rate for all four populations by individuals was 27.9 percent while it was 67.7 percent by airlines. This means that subjects from 67.7 percent of the airlines in the population responded. To gain fairly good overall response rate from airlines was actually one of the main objectives of the survey.

Effective mailings i.e. mailings that actually should have reached the persons involved was high for most strata with the exception of failed new-entrants, where little information was available about the strata.

Table 11-1 Survey Statistics

Population	*Sample*	*Number of mailings*	*Effective mailings*	*Responses by individuals*	*Number of airlines*	*Responses by airline*
Established new-entr.	Whole population	136	129[a]	33 (26%)[d]	23	16(70%)
Recent new-entrant	Whole population	30	25[b]	8 (32%)[f]	6	5(83%)
Failed new-entrant	Whole population	32	Unknown[c]	5 (15%)	11	5(45%)
Specialist	All linked with new-entrants	44	44	15 (34%)[e]		
		242	na	27.9%	40	67.7%

[a] One airline went bankrupt just before the questionnaire was sent out, unknown to the researcher. [b] Two airlines went bankrupt during the survey execution period. [c] Present residence of ex-managers of failed airlines was inferred from International Aerospace Directory. As it is extremely hard to track these managers, poor results were anticipated. [d] One response was seriously positive biased and was rejected on the basis of two other responses from the same airline. [e] One response was incomplete and was rejected. [f] One airline went bankrupt in 1994. [g] The 59 effective responses were received after taking into account notes [d] and [e].

11.2.4 The Problem of Small Sample Size

The small number of respondents is first and foremost the result of the small population of airlines fitting the project's aim. In that sense the number of responses from airlines was quite good as mentioned before. The problem of interpretation then arose: Are the results reliable? To answer this it has to be recognised that due to the high proportion of responses from the population being researched one has to conclude that the results are reliable for that particular population. Ongoing research must establish whether results of the research are representative for other cases within the same population at an other point in time. Thus, it is possible that the results are sample specific.

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[496] See Appendix-N.

11.2.5 The Pilot Survey

The initial pilot survey was conducted by distributing the questionnaire to selected staff members (n = 3) of the College of Aeronautics, at Cranfield. This resulted in changes in question wording, improvement of cover letter wording, a change from a 100 point to a 10 point numerical scale and segregation of factors into groups. The scale alteration was performed due to the tendency of subjects to rate in ten point intervals making the scale inadvertently equal to a 10 point scale.[497]

In the second pilot survey of the questionnaire, ten airlines in Europe and the US, were selected. Of those, three had actually gone out of business, unbeknown to the researcher, just prior to the mailing and no responses were received from those airlines. Due to the small size of the jet operating new-entrant population, the pilot was tested on turboprop operating new-entrants in order to avoid cutting into the actual population.

In total twenty nine questionnaires were sent out addressed by functional title. Cover letters were not market by the Cranfield logo nor the questionnaire form. The questionnaire form was photocopied on a cream coloured paper. Of the twenty nine questionnaires sent five were returned undelivered and three responses (10%) were received. However, a reminder was not sent to non-respondents due to time constraints.

No serious faults were found with the questionnaire based on the responses beside the low response rate that was a fault in itself. The low response rate was attributed to the following causes: (i) lack of identification with a recognised institution; (ii) pilot performed on a non-representative sample; and (iii) the use of titles instead of actual names of receivers. The following changes were made as a result: (i) Cranfield logo inserted on questionnaire; (ii) use a cover letter with Cranfield letterhead; (iii) questionnaires sent to a named person; (iv) wording of few questions was changed; (v) layout made more professional (quality paper and professional copying); and (vi) coding information inserted on last page rather than first page.

With these changes it was hoped that the response rate would increase, which it did, although not to an optimum level.

11.2.6 Survey Management

The survey management was according to a standard process as depicted in Figure 11-1. To begin with a pilot survey was performed on a sample of new-entrant turboprop operators in Europe and USA as discussed before. Following alterations from the pilot survey, the first questionnaires were sent, along with a cover letter. Approximately one month after the initial mailing a follow up letter was sent. Two months after the initial mailing a second follow up letter was sent. This applied to all populations except that of the failed new-entrants, where a search letter was sent to

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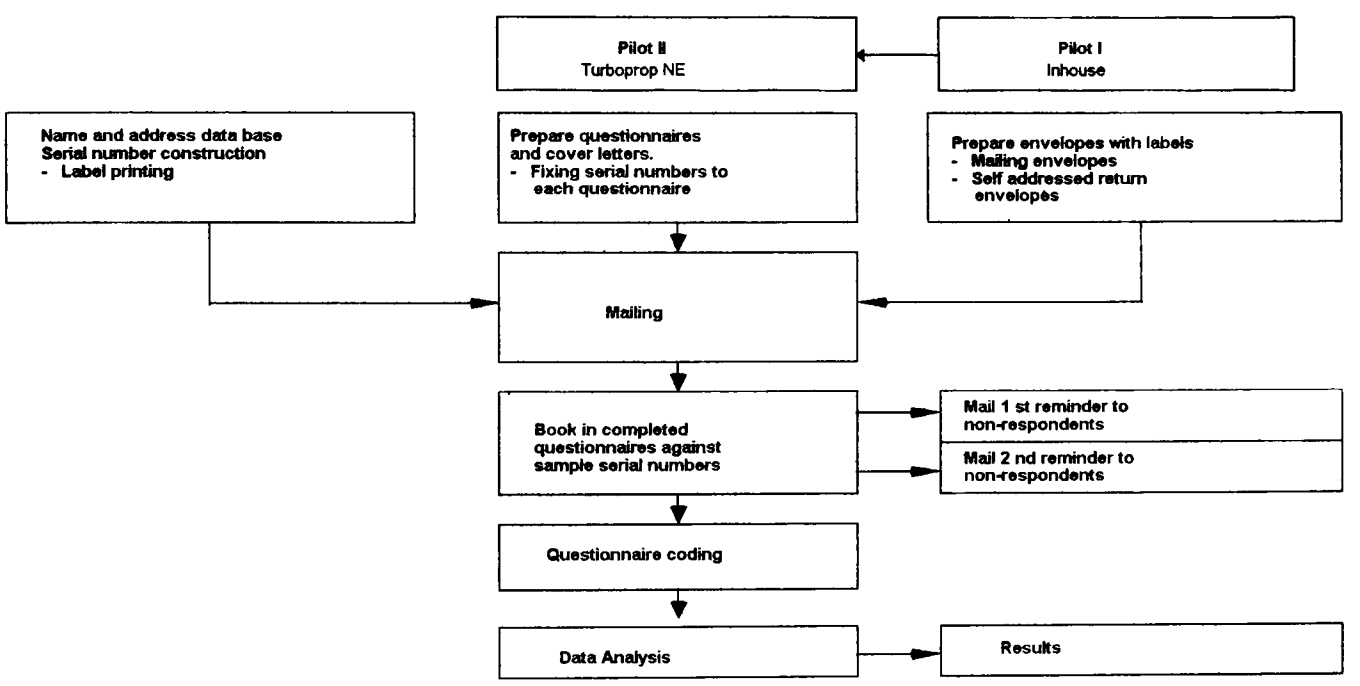
[497] This actually supports the view that attitudes are too imprecise to be rated on wide scales that imply more accuracy than they actually provide.

all 'names' identified as possible ex-executive of a failed airline. The letter asked if the person would be willing to provide the names and addresses of fellow executives at the failed carrier. The response was very limited or only two in total. After further checks of the name lists in the International Aerospace Directory the questionnaire was mailed to the identified names. The results were disappointing as only five responses were received. However, number of bankruptcies during the research process raised the number of failed carriers in the research. Nevertheless, it was deemed necessary to change the original intentions and segregate the carriers into loss (LM) and non-loss (NLM) making airlines.

Figure 11-1 The Survey Process



11.2.7 Subjects versus airlines

In the analysis of the questionnaire most of the results are based on the subjects rather than the aggregated results of airlines. This is due to the necessity to analyse the dependability of individual raters in bankruptcy prediction. In order to examine the dependability of this approach the agreement of raters from particular airlines was analysed giving the results in Table 11-2.

Table 11-2 Agreement among raters within the same airlines: Questionnaire Part I and Part II.

Airline	*Number of raters*	*Correlation among raters: Part I*	*Number of raters*	*Correlation among raters: Part II*
206	2	.6260	2	na
204	2	.5749	2	na
203	2	.5024	2	na
122	3 (2)	-.0174	3 (2)	.4123
118	3	.6763	3 (2)	.7053
117	2	.4555	2	.3215
114	2	-.0641	2	.3737
108	3	.5980	3	.5496
106	2	.3984	2	na
105	5	.3442	5	.4619
104	4 (2)	.5637	4 (3)	.6370

na = Could not be calculated due to missing values. Numbers in brackets indicate that correlation is calculated for fewer than the actual number of raters due to missing values. Only airlines having two or more respondents are shown. Numbers in brackets indicate that correlation is calculated for fewer than the actual number of raters due to missing values.

As the table shows there was a significant positive correlation (p. < 0.05, or better) between respondents from the same individual airline for all airlines having two or more respondents, except airline 114 and 122 that were slightly negatively correlated. In 55 percent of the cases for Part I the positive correlation among raters is above .5, in 82 percent cases it is higher than .3. For Part II the correlation for all valid cases (correlation could not be calculated if there were missing values) was above .3 and for 38 percent of cases above .5. The overall agreement of raters from the same entity can therefore be judged to be satisfactory, based on the results presented in Table 11-2.

11.2.8 Reliability Analysis

Reliability testing was used in the questionnaire analysis to establish whether the scales were reliable. These tests were done separately for Part I and Part II of the questionnaire, based on Cronbach's Alpha.[498] The Cronbach's Alpha for Part I was 0.9272, and for Part IIa it was 0.9391, Part IIb 0.9369 and for Part IIc 0.9480, indicating that the scale is quite reliable[499] for all parts of the questionnaire.

11.2.9 Responses by Category and Geography

The questionnaire responses fell almost evenly between US and EC carriers. The largest discrepancy was unfortunately in the 'failed' category, where the US is overrepresented. The critical factors were, therfore, verified by constructing a separate category of loss and non-loss making airlines.

Table 11-3 Responses by Category and Geography

Area	*Established*	*Recent*	*Failed*[a]	*Specialist*	*Total responses*	*Percent*
US	14	4	4	7	29	49.0
EC	18	4	1	7	30	51.0
Total	32	8	5	14	59	100.0

[a] Five responses counted in the Established column and one in the Recent column were classified as failed in the analysis, as the former respondents were employees of an airline operating under Chapter XI and the latter was an airline that failed shortly after the survey was conducted.

11.2.10 Responses by Functional Category

The number of responses by functional category varied from 6 to 13. As expected fewest responses were from top managers and financial managers or six responses from each. Upper management response to surveys is usually poor due to time pressures and the reluctance to provide information that could prove sensitive or

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[498] The Cronbach's Alpha is based on the 'internal consistency' of a test. 'That is, it is based on the average correlation of items within a test, if the items are standardised to a standard deviation of 1; or on the average covariance among items on a scale are positively correlated with each other because they are measuring, to a certain extent, a common entity. If items are not positively correlated to each other, we have no reason to believe that they are correlated with other possible items we may have selected.' Marija J. Norusis, SPSS/PC+ Statistics 4.0, 1990, p. B-190.

[499] The Cronbach's Alpha can be interpreted as a measurement of the correlation between the actual scale and the other possible scales measuring the same items.

useful to competitors. Furthermore, in this survey on failure this likelihood of non-response is escalated further due to the sensitivity of the issue. Eleven *marketing* (18.6%), nine *operations* (15.3%), six *finance* (10.2%) and six *top* managers (10.2%). Managers that could not be classified into the traditional functional areas, were thirteen (22.0%), while specialists responding, were fourteen (23.7%). The distribution of responses is fairly good across the functional areas, although, a higher response rate from *financial* managers would have been advantageous.

Table 11-4 Responses by Functional Category

Functional category	*Frequency*	*Percent*
Top managers (Chairmen, CEO's)	6	10.2
Marketing managers	11	18.6
Operations managers	9	15.3
Financial managers	6	10.2
Other managers	13	22.0
Specialists (consultants, journalists, academics)	14	23.7
Total	59	100.0

11.2.11 Responses by Education

Most of the managers had at least undergraduate education (BSc or BA) or 83.4 percent. It was expected that more of the managers would have a pilot licence as primary qualification, but only two did. The general conclusion is that managers of new-entrant airlines are well educated professionals.

Table 11-5 Responses According to Education

Education level[a]	*Frequency*	*Percent*	*Valid percent*
Graduate	12	26.7	28.6
Undergraduate	23	51.1	54.8
Some college	2	4.4	4.8
High school or equivalent	3	6.7	7.1
Pilot licence	2	4.4	4.8
Missing cases	3	6.7	-
Total	45	100.0	100.0

[a] Specialists were not asked to specify their education

11.2.12 Age Distribution of Respondents

The largest number of respondents were in the age group 40-49, as expected. But during this age-interval most people peak in their work carreer. The age span of 30 to 59 contained the majority of respondents or 90.7 percent.

Table 11-6 Age Distribution of Respondents

Age group[a]	*Frequency*	*Percent*	*Valid percent*
20-29	2	4.4	4.7
30-39	12	26.7	27.9
40-49	17	37.8	39.5
50-59	10	22.2	23.3
60-69	2	4.4	4.7
Missing cases	2	4.4	-
Total	45	99.9	100.0[b]

[a] Specialists were not asked for their age. [b] Does not add up due to rounding.

11.2.13 Respondents' Airline Size Distribution

In order to conduct life-cycle analysis it was necessary to break the respondents' airlines into groups based on some sort of size measurement. If the US Federal Aviation Administration's (FAA) classification is used it will result in four groups: *small regionals*, *large regionals*, *nationals* and *majors*.[500] The problem with that scheme is that it has too much spread in the revenue band for large-regionals and nationals. A more realistically based classification would take into account the internal changes and organisational pressures within the airline as the size increases.[501] In order to account for this a three category classification scheme was constructed, shown in Table 11-7. The 'new-entrant' stage covers the revenue band of up to $100 million, while the 'transitional' stage from $100 to 500 million and the 'interim major' stage $500 million plus. The transitional stage represents the period during which the airline is changing from entrepreneurial organisation into semi-professional organisation and the interim-major stage is when the airline has incorporated most of the characteristics of professional management and functional organisation and is starting to encounter problems of large size. The findings pertinent to the stages are described in Appendix-G.

Table 11-7 Airlines' Size Distribution

Size Classification	*Revenue band $*	*Respondents frequency*	*Percent*	*Airline frequency*	*Percent*
New-entrant	0-100m	13	28.9	9	34.6
Transitional	100-500m	20	44.4	13	50.0
Interim-major	500+	12	26.7	4	15.4
Total		45	100.0	26	100.0

11.3 Factor Importance

In Appendix-F, a table showing the mean of each item for past, present and future can be observed. From that table it is apparent that *employee productivity* and *relations* are regarded highly important along with the related factors *of flexible job descriptions*, *company culture* and *union free operations*. *Aircraft utilisation* which affects unit costs, is rated as highly important. That factor is influenced by fares, passenger load-factors and costs. The strategic factors *expansion into new markets* and *price leadership in served markets* are rated fairly high as well. Which indicates a level of strategic aggressiveness being regarded as important in the past. Price leadership is usually related to low cost structure so it is no surprise to see cost control among factors highly emphasised by new-entrant's management.

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[500] FAA airline classification scheme: $0-10 Small Regional; $10-100 Large Regional; $100-1bn National; $1bn+ Major.

[501] An interesting account on this issue are the findings of: Eric G. Flamholtz. 'Growing Pains'. Jossey-Bass Publishers, 1990.

Senior executives of new-entrant airlines have placed less importance on alliances, mergers, code sharing, feeder airline agreements, diversification into other industries and hub and spoke operations. This result is surprising in view of all the emphasis on these issues in the media. Frequent flyer programs are among the least important factors, probably because of new-entrant airlines inability to offer attractive programs in competition with the large carriers, who can usually offer attractive holiday destinations in their programs. It is likely, however, that managers of established major carriers like American and United, would rate this factor higher than new-entrants' managers. The basic results looking at the importance rating of the factors, are that factors relating to efficiency, aggressive marketing and image, are rated high; information, distribution and vision are rated in the middle; management, employee motivation, operation and non-core aspects of airline commerce are rated low.

The general trend is an increase in the emphasis of most factors from the past to the present and from the present to the future. The meaning of that development may be associated to wishfulness to improve things going awry in the past. These issues that will be increasingly emphasised in the future are, according to the survey: costs, image building, information systems, distribution and company vision. One more factor involving external co-operation (code-sharing, feeding and alliances) was identified as becoming more important in the future, while its overall emphasis was low. The most striking finding was that all factors regarding information systems gained substantial increase in emphasis from past to future. This indicates that airline managers view information competence as one of the crucial aspects of running an airline in the future. It may also indicate that this aspect of airline management is the one needing the greatest improvement.

A factor showing negative change from past to future surprisingly enough, is service quality. The factor scores very high in comparison to other factors meaning that the managers view this factor as one of the most important in running their airlines, thus, the reduction may not mean that less emphasis will be placed on service quality, rather that they find little scope to increase emphasis on an already highly emphasised factor.

Factors showing little change or negative trend are: achieving critical mass, weight load-factor, diversification into other industries and long-haul routes. All of these factor receive relatively little emphasis by raters, especially the last two factors. Although long-haul routes are not emphasised much by the raters, the fact of the matter is that average stage length increases gradually over the life-cycle of the new-entrant airline. This means that airlines will increasingly enter medium and long-haul routes to maintain adequate growth. However, the raters may not have seen this factor as one of unavoidable necessity and definitely not of strategy. It has also been stated in this thesis that new-entrants emphasising long-haul have fared particularly poorly.

The basic message read from the questionnaire responses is that new-entrants intend to stay in their core business, transporting passengers, as the factor on diversification into other industries shows. This factor was rated very low by the respondents and

of decreasing importance in the future. This is perhaps not surprising in view of the high degree of specialisation involved in air transport. In fact, the idea advocated by some airlines in the past, notably SAS, was that 'airlines were in the travel business'[502] and should as such operate 'total travel' service, involving ground transportation, hotels, business services, travel agencies, car rentals and travel information services. The concept has failed for most airlines just as it has for many companies trying to enter industries that involve different concepts from the one they are in. Of course, there are success stories, but for airlines they are few and far apart. This has left the general feeling that airlines are best to concentrate on their core business.

11.4 Analysis of The Means for The Dichotomous Failure Variable

11.4.1 Introduction

Due to the small sample size the results for failed carriers versus non-failed carriers can only be used as an indicator. However, the next section of loss making versus non-loss making carriers has larger number of respondents. As a result, the factors that distinguish between the carriers in that group and also belong to the factors distinguishing failed and non-failed carriers, reinforce the findings for the failed and non-failed groups of carriers. The factors belonging to both groups are shown in italics in the tables.

11.4.2 Management Assessment: Failure

Analysing the means for the dichotomous failure variable for Part I of the questionnaire, leads to the results presented in
Table 11-8. The environment related statement, *The airline's success is largely dependent on factor out of its control* is very highly significant. Analysis of the means for the statement indicates that raters of failed airlines agree slightly (3.5), while raters of non-failed airlines disagree (2.1). This implies that managers of distressed carriers are more prone to feel out of control.

Examining the marketing variables it becomes apparent that customer service variables appear to distinguish well between the two groups. This includes the statements, *Our service has a range of features that make it distinctive*, which implies that service differentiation is important; *We are innovators in customer service*, is linked to the previous statement but emphasises the leader's aspect of customer service; *Our customer loyalty is strong*, is agreed with by raters of non-failed carriers (4.3), while raters of failed carriers feel more neutral (3.3) on their customer loyalty; *We plan and allocate sufficient resources to developing new markets*, is disagreed with by raters of failed carriers (2.4) but raters of non-failed carriers fall between neutrality and agreement (3.6). This indicates some constraints in terms of resources or it might represent a poor planning function at the airlines involved.

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[502] These ideas of wider definition of business areas were first initiated by Theodore Levitt in his landmark article called Marketing Myopia in Harvard Business Review, July - August, 1960.

Raters of failed carriers are less secure about their airlines' ability to secure capital for growth (1.8) before failure, while raters of non-failed carriers are neutral on the statement (2.8). The general finding is that capital is not readily available to either group. The second statement, classified into the financial group, *We usually have enough resources to plan for the future*, is disagreed with by raters of failed carriers (2.3), indicating a weak planning function within failing airlines, while raters of non-failed carriers are neutral (3.2).

Table 11-8 Significant Differences Between Failed and Non-failed Carriers: Questionnaire Part I.

Statement	*Group*	*Mean*	*Sig.*
Marketing			
We fulfil our customers' needs well	Failed(11)	4,000	**
	Non-failed(34)	4,559	
Our service has a range of features that make it distinctive	Failed(11)	3,182	**
	Non-failed(34)	4,412	
We are innovators in customer service	Failed(11)	3,200	*
	Non-failed(34)	4,118	
Our customer loyalty is strong	Failed(11)	3,273	Ψ
	Non-failed(34)	4,324	
We plan and allocate sufficient resources to developing new markets	Failed(11)	2,364	**
	Non-failed(34)	3,647	
Finance			
Lack of capital will not limit our growth	Failed(11)	1,818	*
	Non-failed(34)	2,853	
We usually have enough resources to plan for the future	Failed(11)	2,364	Ψ
	Non-failed(34)	3,235	
Environment			
The airline's success is largely dependent on factor out of its control	Failed(11)	3,545	***
	Non-failed(34)	2,088	
Management			
Everyone in our airline understands our long term aims and objectives	Failed(11)	2,091	**
	Non-failed(34)	3,500	
The airline has a vision of the future shared by all the employees	Failed(11)	2,636	**
	Non-failed(34)	3,824	
Our staff provide us with a competitive advantage	Failed(11)	3,636	Ψ
	Non-failed(34)	4,353	

Note: *** = $p < .001$; ** = $p < .01$; * = $p < .05$; Ψ = $p < .1$. The statements were rated on a five point scale. Italicised statements are significantly different for both non-failed/failed and non-loss/loss groups.

Statements falling into the management group were three, two of which showed highly significant difference between the means of the two groups. These two were related to the airlines' vision, which appears to be a good distinguishing factor between failed and non-failed carriers. It is, however, apparent that non-failed carriers do not agree strongly with these statements, although, the latter statement *The airline has a vision of the future shared by all the employees*, is agreed with by raters of non-failed carriers (3.8), while the other group is almost neutral (2.6). The former statement, *Everyone in our airline understands our long-term aims and objectives*, receives a mean, for non-failed carriers, midway between neutrality and agreement (3.5), while being disagreed with by the other group (2.1).

A slightly more positive trend appears in the rating of the statement, *Our staff provides us with competitive advantage*, as the mean for non-failed carriers is slightly greater than mere agreement (4.4), while slightly greater than neutral for failed carriers (3.6). This difference was significant at the $p.< 0.1$ level.

11.4.3 Factor Importance: Failure

Only questionnaire Part II, Past is analysed for differences between Failed and Non-failed carriers as respondents of failed carriers were not asked to rate the factors for the present. The italicised statements are significantly different for the two groups of both dichotomised variables, *failure* and *distress*.

Highly significant difference was found between the components of the dichotomous failure variable, for following elements: *Hub and spoke operations*, *yield management system*, *delegation, operations without unionised staff* and *achieving critical mass*.

Table 11-9 Significant Differences Between Failed and Non-failed Carriers: Questionnaire Part II, Past.

Statement	*Group*	*Mean*	*Sig*
Operations			
Hub and spoke operations	Failed(10)	7,727	***
	Non-failed(27)	2,269	
Code sharing	Failed(10)	3,909	*
	Non-failed(27)	1,769	
Matching of aircraft size with route requirement	Failed(10)	7,818	*
	Non-failed(27)	5,923	
Long haul routes	Failed(10)	6,455	*
	Non-failed(27)	2,889	
Frequency in served markets	Failed(10)	7,546	*
	Non-failed(27)	5,370	
Quality of terminal space and ground facilities...	Failed(10)	7,000	*
	Non-failed(27)	5,407	
Interlining agreements	Failed(10)	6,818	*
	Non-failed(27)	4,519	
Management			
Delegation	Failed(10)	7,600	***
	Non-failed(27)	4,846	
Operations without unionised staff	Failed(10)	9,364	***
	Non-failed(27)	6,680	
Job rotation	Failed(10)	5,800	*
	Non-failed(27)	3,308	
Managers' incentive program	Failed(10)	6,364	Ψ
	Non-failed(27)	4,222	
Marketing			
Market-share	Failed(10)	6,818	*
	Non-failed(27)	4,444	
Finance			
Achieving critical mass	Failed(10)	8,364	***
	Non-failed(27)	4,885	
Fuel costs	Failed(10)	7,909	*
	Non-failed(27)	6,269	
Environment			
Competitor analysis	Failed(10)	6,700	*
	Non-failed(27)	4,741	
Information			
Yield management system	Failed(10)	7,364	***
	Non-failed(27)	3,593	
Computer reservation system	Failed(10)	7,000	*
	Non-failed(27)	5.482	
Market-intelligent information and communication system	Failed(10)	7,000	*
	Non-failed(27)	5,000	

Note: *** = p < .001; ** = p < .01; * = p < .05; Ψ = p < .1. The statements were rated on a ten point scale. Italicised statements are significantly different for both non-failed/failed and non-loss/loss groups.

It is interesting and worth noting that the factors showing Highly significant difference of the means are distributed evenly between all the categories represented in the table. All of these factors are rated higher by the subjects of failed carriers, indicating that there is some underlying factor interfering with the results. After careful consideration a concept of *Increased Activity* was arrived at, which is explained at the end of this chapter.

Further analysis on the implications of individual statements and factors can be found in the next section, that uses a dichotomous distress variable to analyse the two groups.

11.5 Analysis of The Means for The Dichotomous Distress Variable

11.5.1 Introduction

The reason for using loss-makers (LM) rather than failed airlines only, is the fact that the response rate of managers of failed airlines was low, besides being important issue for research.

Thus, an assumption was made that operating loss has a string of causes that are the same as that of failure. As a result, airlines making operating losses for number of years will show the same characteristics as airlines that have already failed. However, loss making airlines can turnaround the situation, making losses a rather unreliable basis for bankruptcy prediction. Nevertheless, there were number of identical factors showing significant differences of the two groups both for the dichotomous failure and distress variables.

Airlines were only selected into the distress category if they had made operating losses in 1992 or 1991 and during three of the last five operating years counted from the last available financial data. The assumption is therefore that losses for three out of five consecutive years cannot be due to environment's influence or catastrophic events alone. All the failed airlines were included in this category as well. The basis of classification of each airline into the two categories can be observed in Appendix-J.

11.5.2 Management Assessment: Distress

The results of the survey, as illustrated in Appendix-E and Table 11-10, show that managers of new-entrant airlines feel that their airlines are performing well overall. If each critical factor is examined separately, we discover that there were seven statements that showed significant difference between loss- and non-loss. Measuring the attitude on access to capital, LM felt that lack of access to capital might limit the growth prospects of the airline (2.1), while NLM's were overall neutral (3.2) on the statement.

The general finding on this issue, appears to be that capital is a limiting factor in new-entrants' growth prospects. NLM's felt strongly (4.3) on their ability to fulfil their customers' needs, while LM's showed agreement (4.3) overall with the statement. LM's (3.0) showed neutrality on the statement *on planning and allocation of resources to developing new markets*, while NLM's were more in agreement (3.7). This must be viewed as one of the fundamental processes for reducing the risk of growth, as entrance into new markets can be viewed as the highest risk areas in running an airline due to the costs involved. Careful planning must therefore be viewed as highly important. The finding therefore supports the notion that loss-makers are more prone to allocate less resources to this function, leading to greater costs and somewhat poorer route network than that of NLM's.

The LM's feel that their *success is somewhat out of their control* (2.8), while NLM's disagree (2.0) with this statement. Non-loss making new-entrants agree more (4.2) that their airlines are *innovators in customer service*, while loss-making new-entrants fall between neutral and agreement (3.6). It is clearly apparent that innovation is an important critical factor, in view of its relationship with other management factors. This stems from the fact that innovation in customer service has to be employee supported to work, hence needing resourceful personnel management. The last factor, supports this view, as NLMs feel stronger (3.6) on the statement, *everyone in our airline understands our long term aims and objectives,* than LMs (2.8). This supports the notion that employees of non-loss making airlines are better guided than those of loss-making airlines.

Loss-makers agree more readily (3.6) with *group consensus being the usual way to make decisions,* while non-loss makers are more neutral (2.9). This is the only additional factor to the ones identified in the failed/non-failed group. The reasons for loss makers having greater consensus on decision making could be numerous. One of the likeliest explanations is that the individual airlines having experienced losses for years are putting an extra effort into turning the airline around. This will involve among other things increased team effort involving consensus on action plans and individual decisions.

An other totally converse explanation could be that group consensus is actually slowing the decision making capacity of the organisation. Such situation could develop in an organisation where risk aversion is prevailing to the extent that all major decisions are avoided by attempting to gain group consensus.

Next we will examine the factors in Part II of the questionnaire survey, in relation to the dichotomous distress variable.

Table 11-10 Significant Differences Between Loss and Non-loss making Carriers: Questionnaire Part I.

Statement	*Group*	*Mean*	*Sig.*
Marketing			
We are innovators in customer service	Loss(23)	3,565	*
	No-loss(21)	4,286	
We plan and allocate sufficient resources to develop new markets	Loss(24)	3,000	Ψ
	Non-loss(21)	3,714	
We fullfil our customers' needs well	Loss(24)	4,290	Ψ
	Non-loss(21)	4,570	
Finance			
Lack of capital will not limit our growth	Loss(24)	2,083	**
	No-loss(21)	3,190	
Environment			
The airline's success is largely dependent on factors out of its control	Loss(24)	2,833	*
	No-loss(21)	2,000	
Management			
Everyone in our airline understands our long term aims and objectives	Loss(24)	2,792	*
	Non-loss(21)	3,571	
Group consensus is the usual way we make decisions	Loss(24)	3,625	Ψ
	No-loss(21)	2,905	

Note: *** = p < .001; ** = p < .01; * = p < .05; Ψ = p < .1.

11.5.3 Part II

Loss-makers show higher emphasis both in the past and present *on hub and spoke operations* indicating a possible relationship between such operating strategy and poor results. A second striking result was the persistent difference in the emphasis on *job rotation* in all three time periods. Where LM's emphasised this management practice more. It is possible that highly emphasised job rotation policy creates inefficiencies that are highly linked with the airlines overall profitability. More research is needed in order to substantiate such conclusion. Regardless, this item is highly discriminating of the two and is useful in a failure prediction model as such.

Non-loss makers show higher emphasis on marketing items like *service quality*, *brand image, expansion into new markets* and *media advertising.* These items are usually regarded as playing large role in airline success today. The survey further substantiates that believe. Furthermore, NLM's also emphasise more *cost reduction* and *aircraft utilisation.* In fact the latter item has been emphasised greatly in the last few years as a result of the success of Southwest Airlines, that emphasises aircraft utilisation very much in its strategy. Cost reduction, on the other hand, was highly important during the period in which the survey was conducted, due to a recession in air transport. Thus, it is no surprise that emphasis on cost reduction and non-loss making go hand in hand. The noteworthy aspect of this finding is that loss-makers, regardless of their distress appear to be emphasising this aspect of turnaround to lesser degree than the non-loss makers. This could be due to less scope for cost reduction at distressed carriers, although, that can hardly be substantiated from the literature. An other explanation could be that management of such carriers is weak in terms of initiating and following through unpopular cost cutting programs. The latter explanation is probably more likely, although more research on this issue is necessary.

Table 11.11 Significant Differences Between Loss and Non-loss Making Airlines

	Past		*Present*		*Future*	
Statement	*Group*	*Mean*	*Group*	*Mean*	*Group*	*Mean*
Operations						
Aircraft utilisation			Loss(20)	7,950 $^{\Psi}$		
			Non-loss(20)	8,850		
Hub and spoke operation	Loss(20)	6,000 ***	Loss(20)	5,400 *		
	Non-loss(17)	1,412	Non-loss(19)	2,895		
Management						
Decentralised organisation structure			Loss(20)	6,250 *		
			Non-loss(19)	4,263		
Job rotation	Loss(19)	5,158 *	Loss(20)	5,800 ***	Loss(22)	5,773 **
	Non-loss(17)	2,706	Non-loss(19)	3,158	Non-loss(19)	3.579
Marketing						
Media advertising			Loss(20)	5,500 **		
			Non-loss(20)	7,300		
Brand image	Loss(19)	5,895 $^{\Psi}$				
	Non-loss(18)	7,333				
Service quality	Loss(20)	6,350 *				
	Non-loss(18)	8,167				
Merger/acquisition to gain market-share	Loss(19)	3,947 *				
	Non-loss(17)	1,941				
Alliance with the incumbents	Loss(20)	4,167 *	Loss(18)	5,278 *	Loss(20)	6,350 $^{\Psi}$
	Non-loss(17)	2,353	Non-loss(19)	3,474	Non-loss(19)	4,684
Expansion into new markets			Loss(20)	6,450 $^{\Psi}$	Loss(22)	6,818 **
			Non-loss(20)	7,550	Non-loss(20)	8,250
Finance						
Achieving critical mass	Loss(20)	6,850 $^{\Psi}$				
	Non-loss(17)	4,824				
Off-balance sheet financing of aircraft	Loss(20)	6,650 $^{\Psi}$				
	Non-loss(17)	4,765				
Cost reduction			Loss(20)	7,500 *	Loss(22)	8,136 *
			Non-loss(20)	8,700	Non-loss(20)	9,100
Information						
Computer reservation system	Loss(20)	6,600 *				
	Non-loss(18)	5,167				
Yield management system	Loss(20)	5,600 $^{\Psi}$				
	Non-loss(18)	3,667				
Market-intelligent information- and communication..					Loss(22)	8,045 *
					Non-loss(20)	6,889
Environment						
Investors' attitudes towards the new-entrant	Loss(20)	7,100 *				
	Non-loss(17)	4,710				
Favourable attitude of travel agents			Loss(20)	8,300 $^{\Psi}$	Loss(22)	9,000 *
			Non-loss(20)	7,250	Non-loss(20)	7,900

Note: *** = p < .001; ** = p < .01; * = p < .05; $^{\Psi}$ = p < .1. The statements in italics are statistically significantly different for both failed and non-failed and loss and non-loss making carriers. Note that only Part II, Past was tested for the failed/non-failed group.

In the future one new item appears that was neither in the past or present item list, namely *Market-intelligent information- and communication system*. One of the reasons for LM's to emphasise this item to a greater extent than NLM's in the future may very well be less satisfaction with past and present information systems, compared to NLM's. Thus, lack of market information may be an important source of difference in profitability between LM's and NLM's.

There is a considerable shift in terms of factors relative importance between the Past, on one hand, and the Present and Future on the other hand. It is apparent that the

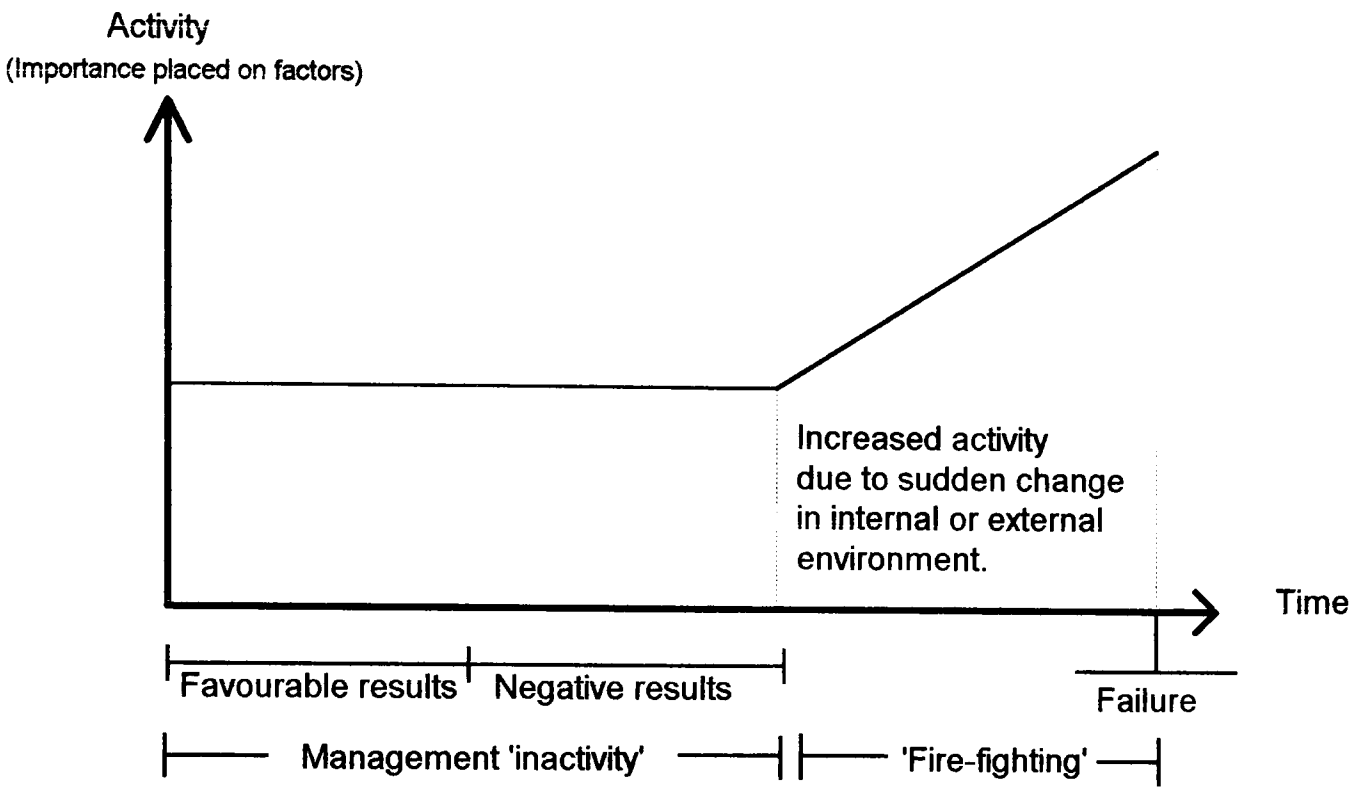
shift is towards the distribution network (*Favourable attitude of travel agents* and *Computer reservations systems*) and *brand image* through *service quality* and *company culture*. As labour costs are one of the most important areas for cost reduction, it is apparent that the airlines are seeking an alternative way to reduce labour costs namely to increase labour productivity. In order to do so the airline has to maintain good employee relations that facilitate co-operation and strong motivating company culture.

11.6 The Increased Activity Phenomenon

It is apparent from the questionnaire that the raters of the failed airlines rate the importance of the factors in Part II, higher for those factors that are significantly different between the two groups. There are two possible explanations to this phenomenon; first, the raters could be concerned about their own performance prior to the airline's failure, thus, overrating the importance placed on the various factors; second, the raters may actually be rating the importance placed on the factors during the trouble period just prior to failure. The latter explanation is more likely in the case of failed firms. This is due to the fact that all activity in the airline increases during the problem period in an attempt to rectify the 'causes' of the airline's problems. The actual causes are namely in many cases the previous inactivity of the management in terms of these factors that suddenly gain so much importance when the airline is facing failure. Therefore, one can infer that the responses for the failed airlines on Part II are accurate for the failed airline just prior to failure but do not indicate clearly, which factors where neglected before the increased activity.

Figure 11-2 shows a situation where an airline has been indifferent to its environment both internally and externally until a 'catastrophe' occurs, causing a sudden increase in activity. The catastrophe can be caused by a year of a very large loss, losses for period of years causing a reaction of creditors or shareholders, or a market entry of a more efficient competitor. As a long period of inactivity and ignorance of external and internal developments has weakened the airline, the increased activity will not necessarily save the airline. That depends on the access to capital as it will take considerable time to make the carrier fit again to reach profitability. In either case the period before failure or successful turn-around will be characterised by increased activity in the organisation, sometimes termed and well described as 'fire-fighting'.

Figure 11-2 Increased Activity Prior to Failure



11.7 Conclusion

Statements distinguishing between both failed and non-failed carriers and loss-making and non-loss making carriers for Part I of the questionnaire, were: *The airline's success is largely dependent on factors out of its control, everyone in our airline understands our long term aims and objectives, we plan and allocate sufficient resources to developing new markets, lack of capital will not limit our growth, we fulfill our customers' needs well* and *we are innovators in customer service.* Non-failed and non-loss making carriers had higher means for all the named statements except the first one.

For Part II of the questionnaire statements distinguishing between both failed and non-failed carriers and loss-making and non-loss making carriers were: *Hub and spoke operations, yield management system, achieving critical mass, job rotation and computer reservation system.* Other very highly significant statements distinguishing between failed and non-failed carriers were: *Delegation* and *operations without unionised staff.* No highly significant statements distinguished between loss-makers and non-loss-makers, except *Hub and spoke operations* and *Job rotation.* However, statements showing significant difference were: *Service quality (past), Merger/acquisition to gain market-share (past), Investor's attitudes towards the new-entrant, Alliance with the incumbents, Decentralised organisation structure* (present) *and Market-intelligent information- and communication system* (future).

Loss-making airlines show slightly less emphasis on *cost reduction*, while the statement is highly emphasised by both groups. Loss-makers show more emphasis on *Favourable attitude of travel agents* showing a need for increased emphasis on the distribution system, probably in order to rectify past defects. Non-loss makers show

increasing future emphasis on *Expansion into new markets*, *Media advertising* and *Aircraft utilisation*.

The uniform greater emphasis on factors in Part II of the questionnaire, by respondents of failed carriers is traced to Increased Activity or 'fire-fighting' during turnaround attempts.

12. New-entrant Airlines' Failure Prediction Models

12.1 Introduction

In the chapter, three sources of failure prediction model construction will be presented: Part I and Part II of the questionnaire survey and the new-entrant airlines' data-base. The purpose of developing models from three sources is to test whether there are similarities in the variables selected into the models, as well as to test whether other model sources than the traditional financial source can perform as well or better in classifying companies into the failed and non-failed and distressed and non-distressed groups, as well as to test if the combination of models from more than one source will enhance prediction of financial distress or bankruptcy.

A test of the null hypotheses that there is no difference in the classification accuracy of models derived from different subsets of variables from the questionnaire, do not differ in terms of classification ability, was carried out. The same hypotheses was tested for the data-base, but on different sub-sets from the questionnaire.

12.1.1 Methodology Considerations

Multicollinearity is certainly an issue in traditional regression analysis. In logistic regression multicollinearity can be used to enhance the discriminatory power of the regression function. Cochran[503] showed that variables that appear unimportant on their own, may in combination with other variables be highly important and enhance classification ability of the model. In general one must assume that the same relationship exists between the independent variables and the dependent variable when the function is used to predict failure and non-failure. If multicollinearity is present, another assumption must be added, namely that of a stability between intercorrelations of the group on which the model is based and the group on which the function will be used to predict. If this latter assumption does not hold the results will be sample specific and predictability will be poorer than for the original group from which the function is derived.[504]

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[503]R. Cochran and R. Green, Statistical Methods for Bankruptcy Forecasting, Journal of Economics and Business, March 1982, pp. 349-354.

[504]As reported in C. V. Zavgren, The Prediction of Corporate Failure: The State of The Art, Journal of Accounting Literature, Vol. 2, 1983, p. 15.

It must be noted, however, that another function based on the variables excluded in the model may be as good in predicting bankruptcies due to correlation with the variables included. Thus, it is not appropriate to assume that any one function derived from the sample data to be unique information.[505]

Another important issue in failure prediction is the potential cost of errors. Such costs are, of course, relative according to who is using the results of prediction model. For example, from the standpoint of investors the cost of Type 1[506] error would be more costly. Conversely from the standpoint of managers of firms the cost of Type 2 error would be more costly raising creditors alarm unnecessarily.[507]

Bankruptcy prediction models have sometimes been developed separately for each year prior to failure, often up to five years. This practice is highly questionable,[508] since the practitioner cannot determine accurately which model to use for prediction, the one year, the second year or the third year model if we assume a three year data-set. There is, however, a difference if the models are presented as base models,[509] whereas their predictability is then tested on the other years.[510] [511] Under such circumstances the use of a model based on the year prior to failure and an other based on the third year prior to failure could enhance bankruptcy and distress prediction.

12.2 The Application of The Logistic Regression Methodology

12.2.1 Model Construction Foundation

The Statistical Package for Social Science (SPSS PC$^+$ Ver. 6.0) was used for the data analysis. The SPSS logistic regression methodology uses the maximum likelihood estimation by the Newton-Raphson[512] method. This means in practicality that the selected coefficients are the ones that make the observed results most likely. As the logistic model is non-linear an iteration algorithm is used for parameter estimation. Such iteration makes the coefficients larger[513] each time it iterates, as a result, a

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[505] Op. cit. (Zavgren), p. 17.

[506] Type 1 error is to predict a failed firm as non-failed; Type 2 error is to predict a non-failed firm as failed.

[507] In the case of airlines the cost of Type 2 error can in fact be detrimental for the airline, due to the travel agency dependency, whose bookings usually are dramatically reduced as rumours of imminent failure occur.

[508] See discussion in: Keasey and McGuinnes, Failure of UK Industrial Firms 1976 - 1984, Journal of Business Finance & Accounting, 17 (1), Spring 1990, p. 123.; and in: J Robertson and R.W. Mills, The Uses and Abuses of Corporate Prediction Models, Management Accounting, October 1991, p. 21.

[509] A base model means that the formula is based on that years data. This means that one can produce a base model from data three years prior to failure and test its classification ability on data one and two years prior. This alternative raises the practitioners ability to predict failure of companies that might not be classified as prone to failure according to a model based on first year prior to failure. In fact one can suggest an algorithm where the practitioner starts out with a model based on one year prior, then with a two year prior model and lastly with a three year prior model. If there is a discrepancy between the three base models there is a reason to research the company more thoroughly.

[510] Such methodology was used by: John Innes, et al., Prediction of small company failure, Credit Management, September 1991, pp. 37–42.

[511] In fact the practitioner can not, based on the statistical model, infer how far from bankruptcy a given case is.

maximum of twenty iterations was allowed in parameter estimates in this study.

In Logistics Regression a number of specific terms and concepts are used. The *likelihood* is the probability of the observed result given the parameter estimates. It is represented by -2 times the *log* of the *likelihood* (-2LL) and represents how well the model fits the data. Thus, a good model has a high likelihood of the observed results, translated into small value for -2LL.[514] The model's improvement is the change in the -2LL as each successive variable is entered or excluded from the model. Thus, a large difference between the initial -2LL with only the constant included and the final model with one or more variables, indicates high probability of observed result given the parameter estimates. Thus, a model classifying the sample perfectly into two groups, failed and non-failed, will have -2LL of 0.

Interpretation of the logistic coefficients is meaningful, unlike in Multiple Discrimination Analysis. If we write the logistic model in terms of the log of odds, or logit, we find:

$$\ln\left(\frac{\text{Prob (event)}}{\text{Prob (no event)}}\right) = B_0 + B_1X_1 + \ldots + B_pX_p \qquad (12.1)$$

Thus, the logistic coefficient can be interpreted as change in log odds as the independent variable changes by one unit. Thus, a coefficient of .5 in a failure prediction model will with one unit change in the independent variable increase the log odds of failure by .5. If we rewrite the formula to represent odds only, instead of log odds, it takes the form:

$$\frac{\text{Prob(event)}}{\text{Prob(no event)}} = e^{B_0 + B_1X_1 + \ldots + B_pX_p} = e^{B_0}e^{B_1X_1}\ldots e^{B_pX_p} \qquad (12.2)$$

Thus, e raised to B_i will result in a factor that determines the odds change when the ith independent variable increases by one unit. As a result, if the estimator B_i is positive the factor will be grater than 1, leading to an increase in the odds; if the B_i is negative it leads to a factor of less than 1, that reduces the odds. Thus, if B_i is 0 the factor becomes 1 and the odds are left unchanged. This leads to the third equation used to estimate the probability of failure in our case:[515]

$$\text{Estimated prob(failure)} = \frac{1}{1+e^{-z}} \qquad (12.3)$$

Where e is the natural logarithm and z the log-odds.

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[512]For detailed discussion and full algorithm listing, please refer to the SPSS Statistical Algorithms, 2nd ed.

[513]Large coefficients are a problem as they will cause extreme swing in prediction results. This means that little change in observed value will cause large change in predicted probability. The practical consequence is that the model will yield almost uniformly only the extreme values of 0 and 1, which is an unacceptable trait in the model.

[514]Marija J. Norusis, SPSS/PC+ Advanced Statistics 4.0, SPSS Inc., Chicago, 1990, p. B-45.

[515]Op. cit. Norusis, p. B-43.

In the model construction both *forward stepwise* (FSTEP) variable entry and *backward stepwise* (BSTEP) was used. In the former method an independent variable is entered based on the significance level of the score statistic. Thus, the variable with highest significance level ($p. < .05$) is entered and variables already in the model are tested for removal based on the significance of the likelihood-ratio[516] (LR) statistic ($p. > .1$).[517] The backward stepwise methodology enters all variables at the first step and then proceeds to eliminate variables from the model as in FSTEP. The significance level for variable entry was set at .05 and .1 for variable elimination. A relaxation of these lead to an increase in the inclusion of non-significant coefficients in the models, which was found unacceptable.

It is important in the interpretation of the model coefficients to analyse the reasons behind reverse signs to what was expected. The apparent relationship of the means with the signs of the coefficients appears to be in the direction of the difference of the means. Thus, if the mean is greater for non-loss makers (NLM) than loss-makers (LM) the sign is positive, conversely if the mean is lower the sign is negative. Furthermore, interpretation of coefficient signs has to take into account that the representative variable may be highly emphasised or agreed to by both groups, regardless of its classification properties. Thus, one must not interpret any variable as an *failure factor* or *success* factor, one can only state that the intensity of its rating differs between the two groups under observation.

An explanation for negative signs of variables that 'a priori' one would expect to be agreed on more readily at NLM airlines than LM airlines for Part II of the questionnaire survey, is the *increased activity* phenomena that was mentioned at the end of Chapter 11. This depicts that the airline will increase activity in order to return the airline to profitability and is characteristic of distressed airlines. Increased activity can be a measurement of financial distress and appear as an increase in the odds of financial distress (coefficient with a negative sign).

12.3 Results of Logistic Regression on Questionnaire Part I

12.3.1 Model Derived from Questionnaire Part I

Model Q1, is based on the variables from questionnaire Part I. Using logistic regression to classify the cases into two groups, loss making (LM) airlines and non-loss making (NLM), 91.11 percent overall classification was attained. Two coefficients were significant and one highly significant. Some multicollinearity was present as can be seen from the correlation table in Appendix-L, for model Q1. This implies that the resulting model may be sample specific.

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[516]The likelihood-ratio test estimates the model with each variable eliminated and looks at the change in the log-likelihood.

[517]Variable entry was limited to alpha level 0.05 and variable exclusion to alpha level 0.1. This led to fewer variables being included in the models, than if the alpha levels were relaxed, but increased the number of significant coefficients in the models.

The Type 1 error was 4.17 percent, while the Type 2 error was 14.29 percent. The model chi-square was very highly significant, while the pseudo-R squared[518] was satisfactory at .51. Two coefficients were significant, *Everyone in our airline understands our long term aims and objectives* and *Employees are rewarded for taking actions that benefit our customers*, while the coefficient representing *Lack of capital will not limit our growth* was highly significant.

The coefficients in the model having negative sign show apparently wrong sign in the logical context, as one would normally associate these variables with non-loss-making. The explanation is, however, that these variables have higher means for loss-making carriers.

Table 12-1 Results of Logistic Regression for Part I

Model Q1	Statement	β	Sig.
Q6	The airline's success is largely dependent on factors out of its control	-1.0158	
Q13	We fulfil our customer' needs well	1.4569	
Q17	Our marketing is aggressive	-1.1002	
Q25	Lack of capital will not limit our growth	1.7224	**
Q26	Everyone in our airline understands our long term aims and objectives	0.02787	*
Q45	Employees are rewarded for taking actions that benefit our customers	-1.4643	*
Q5	Group consensus is the usual way we make decisions	-.7493	
	Constant	-.9600	
-2 Log Likelihood	30.159		
Goodness of fit	30.810		
L NL	95.83 85.71		
Overall	91.11		
Model Chi-Square	32.024***		
Pseudo R	.51		
n	L24 NL21		

Note: *** – p < .001; ** – p < .01; * – p < .05; Ψ – p < .1.

Aggressive marketing as such begets retaliation by the incumbent and does not provide for longevity as People Express, America West and other temporary success stories prove. Thus, aggressive marketing can logically assume a negative sign in the model for the sample involved.

Employees are rewarded for taking actions that benefit the customer, receives higher mean for loss makers. One would believe on a priori that this should be a positive coefficient. The reason for greater agreement among loss makers is probably due to their attempt to turn-around, but *increased activity* would logically focus on this aspect.

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[518] The pseudo R squared is an attempt to produce a measurement device of the adequacy of the model, like that used in multiple linear regression. The underlying principle is the 'proportion of variation explained by the model' or R^2 in multiple linear regression, simulated as pseudo-R^2 in logistic regression:

$$R^2 = \frac{\text{1 - Residual sum of squares}}{\text{Total sum of square}} \qquad \text{Pseudo } R^2 = \frac{\text{Initial -2 LL - model -2 LL}}{\text{Initial -2 LL}}$$

Next we will examine what critical factors came up when the 'emphasis' factors of Part II of the questionnaire were entered into the logistic regression model.

12.4 Results of Logistic Regression on Questionnaire Part II

12.4.1 Models Derived from Questionnaire Part II

For Part II of the questionnaire the variable set was divided into six sub-groups based on the *underlying model of analysis* presented in Chapter 1. Then a separate model for each sub-group in the three time intervals *past*, *present* and *future*.

Table 12-2 shows the resulting models for the *past*, while Table 12-3 and Table 12-4 show models constructed for the *present* and the *future*.[519] Focusing on Table 12-2, model construction was successful for all sub-groups except *financial*, that yielded no result. Other models were significant, with highly significant model chi-square for the *operations*, *management* and the *marketing* models. The pseudo-R squared shows satisfactory models for *operations* and *marketing* but poorer model for *management*, although having high model chi-square significance.

The best classifying result was obtained in the *marketing* model or 87.5 percent overall classification. The Type 1 error was 11.76 percent and Type 2 error 13.33 percent. The second best performing model was that of *operations* with 84.85 percent overall classification capability. That model has considerable poorer result on Type 1 error or 16.67 percent, while Type 2 error was the same as that of the *marketing* model.

All coefficients were significant at the p. < 0.05 level, except *Alliance with the incumbents,* in the *marketing* model. Three coefficients were significant at the p. < 0.01 level; *Hub and spoke operations,* in the *operations* model, *Job rotation* in the *management* model, and *Service quality* in the *marketing* model.

The surprising result was that logistic regression on the financial variables produced no model given the same constraints on variable entry as that for the other models. As a result it appears that the qualitative financial variables applied are poorer predictors of financial distress than 'a priori' presumption.

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[519] One model for each time period had to be constructed rather than to test a base model on the data sets of the other periods. The reason is that the one can not assume that the same variables are as important in the future as in the past, due to the inherent dynamism of the qualitative variables.

Table 12-2 Results of Logistic Regression by Variable Sub-Groups: Part II, Past

	Environment *Model Q2a*	*Information* *Model Q3a*	*Operations* *Model Q4a*	*Management* *Model Q5a*	*Marketing* *Model Q6a*	*Financial* *Model Q~a*
Past	Investor attitudes towards the airline -0.2553** Constant 1.5113Ψ	Yield management system -0.2776** Constant .9083	Hub and spoke operations -.8010** Freight operations .6450* Constant .5926	Job rotation -.7925 ** Decentralised organisation structure .5362* Constant .7047	Alliance with the incumbents -.4157 Ψ Market-share -.6874* Service quality 1.0123** Constant -2.6641	No result
-2 Log Likelihood	39.594	40.946	25.122	33.104	24.114	
Goodness of fit	32.320	33.665	25.266	39.612	27.902	
L NL	76.47 56.25	73.68 60.00	83.33 86.67	78.95 80.0	88.24 86.67	
Overall	66.67	67.65	84.85	79.41	87.50	
Model Chi-Square	6.123*	5.716*	20.353***	13.558**	20.122***	
Pseudo R	0.13	0.12	0.45	0.29	0.45	
	n=L17 NL16	n=L19 NL15	n=L18 NL15	n=L19 NL15	n=L17 NL15	

Note: *** = p < .001; ** = p < .01; * = p < .05; Ψ = p < .1. Factors that are italicised appeared in two or more time periods.

Regression on the *present* part of the questionnaire resulted in only three models, all showing similar classification accuracy. The sub-groups of variables that did not produce models were the same sub-groups that produced the poorest models in the *past*.

The pseudo R^2 was non-spectacular, being 0.39 for the *management* (Q5b) model and 0.32 and 0.30 for the *operations* (Q4b) and *marketing* (Q6b) models. The *operations* model outperformed the *marketing* model producing the highest overall classification or 78.4 percent. However, this is considerable poorer performance compared to 84.9 percent for the *operations* model in the *past*. Model Q6b provided much poorer result in the 'present' variable set or 76.5 percent overall classification. The Type 1 and Type 2 errors differed much between the three models: For model Q4b the Type 1 error was 21.05 percent, while models Q5b and Q6b had 20.0 and 29.41 percent, respectively; Type 2 error was 22.22 percent for Q4b, 29.41 percent for Q6b and 17.65 percent for model Q6b.

All the coefficients are significant at the 0.05 level or better, with the exception of *Aircraft utilisation* in model Q4a. The only highly significant coefficient *was Job rotation* in model Q5a.

The *future* part of the questionnaire survey produced as before a *marketing* (Q6c) and *management* (Q5c) model, while the *operations* (Q4c) variable sub-set produced no model. However, the *information* (Q3c) sub-set produced a poor one variable

model. Model Q5c has pseudo R^2 of 0.35, while the other models Q3c and Q6c had 0.10 and 0.25, respectively.

Table 12-3 Results of Logistic Regression by Variables Sub-Group: Part II, Present

	Environment Model Q2b	*Information Model Q3b*	*Operations Model Q4b*	*Management Model Q5b*	*Marketing Model Q6b*	*Financial Model Q7b*
Present	No result	No result	Aircraft utilisation .5887$^{\Psi}$	Flexible job descriptions .5311*	Market research -.9361*	No result
			Hub and spoke operations -.4684*	Job rotation -.8461**	Media advertising .8910*	
			Freight operations .4138*	Constant -.1557	Constant .5289	
			Constant -4.8343$^{\Psi}$			
-2 Log Likelihood			35.083	31.194	32.907	
Goodness of fit			30.697	28.297	48.363	
L NL			78.95 77.78	80.00 70.59	70.59 82.35	
Overall			78.38	75.68	76.47	
Model Chi-Square			16.183***	19.855***	14.227***	
Pseudo R^2			0.32	0.39	0.30	
			n= L19 NL18	n= L20 NL17	n=L17 NL17	

Note: *** = p < .001; ** = p < .01; * = p < .05; $^{\Psi}$ = p < .1.

The surprising aspect of model Q3c is the low Type 1 error of only 9.09 percent, while the Type 2 error was very high, or 70.59 percent. This means that the model is good in classifying failed firms as failed, but extremely poor at classifying non-failed airlines as non-failed. The reason behind this is not clear.

Model Q6c has 72.2 percent overall classification, while model Q5c yields 68.48 percent. Both models have lower Type 1, compared to Type 2 errors, 28.57 and 26.32 percent for Type 1, and 35.29 and 29.41 percent for Type 2, for models Q5c and Q6c, respectively.

Each model's Beta values, test statistics and distribution of predicted probabilities can be found in Appendix-L. The distribution traits are especially important to identify extreme outliers[520] that are common to all models due to carriers that are operationally, strategically or financially very different from the rest of the sample

[520]Extreme outlier is a case that has high predicted probability in the opposite direction to observed classification.

that causes different responses to the statements compared to the majority of cases in the same group.

Table 12-4 Results of Logistic Regression by Functional Group for Part II, Future

	Environment Model Q2c	*Information Model Q3c*	*Operations Model Q4c*	*Management Model Q5c*	*Marketing Model Q6c*	*Financial Model Q7c*
Future	No result	Market-intelligent information-and communication system -.4793*	No result	Employees productivity 1.0119*	Frequent flyer programs -.2585*	No result
		Constant 3.3324Ψ		Job rotation -.7903**	Expansion into new markets .7555**	
				Constant -5.6825	Constant -4.4099*	
-2 Log Likelihood		48.168		40.250	37.506	
Goodness of fit		37.828		35.080	37.637	
L NL		90.91 29.41		71.43 64.71	73.68 70.59	
Overall		64.10		68.42	72.22	
Model Chi-Square		5.255*		12.007***	12.289**	
Pseudo R^2		0.10		.35	.25	
n		L22 NL17		L21 NL17	L19 NL17	

Note: *** = p < .001; ** = p < .01; * = p < .05; Ψ = p < .1.

The overall conclusion is that the *operations*, *marketing* and *management* models yield the best[521] results in terms of distribution traits. Of these three, the *marketing* model shows apparently better overall distribution traits than the rest of the models.

12.5 Results of Logistic Regression on Airline Data-base

12.5.1 Introduction

The airline data-base[522] was constructed for the purpose of producing a variable set for discrimination between failed and non-failed new-entrant airlines in the United States from 1978 until 1992. The selection of new-entrants for inclusion in the data-base was based on same principles as that of the selection of new-entrants for the questionnaire survey (see Chapter 11).

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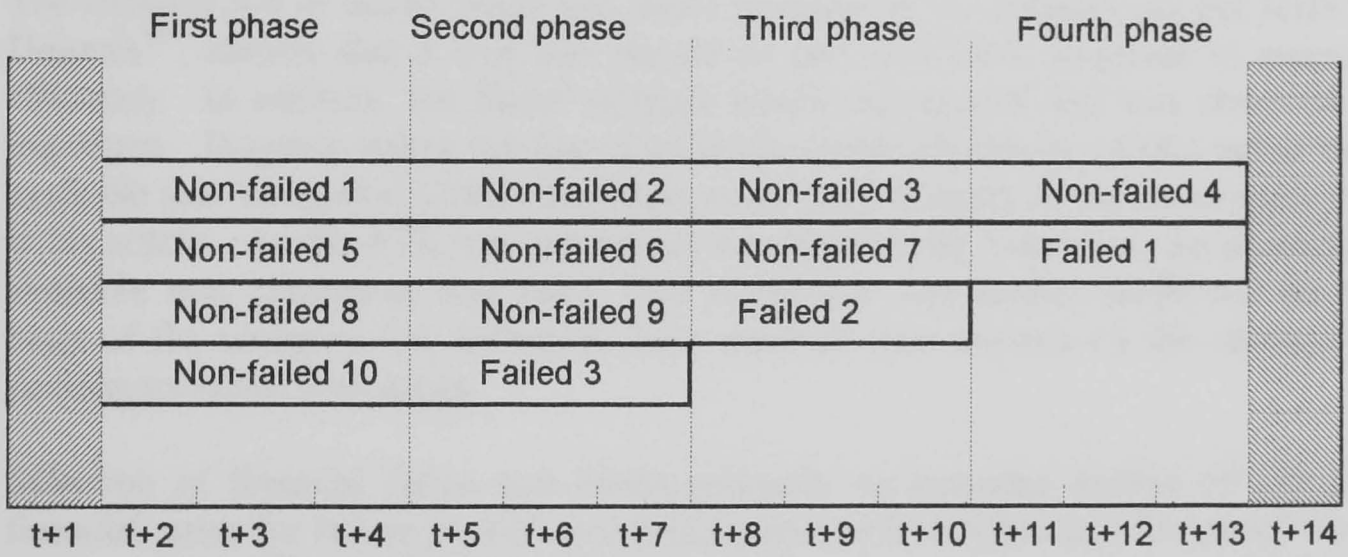
[521] A 'best' model in this context, is a model producing predicted probabilities much to the expected extremes, 1 for failed and 0 for non-failed.

[522] The data-base was constructed by the researcher directly from filings with the US DoT (used to be to the CAB). The data was validated thoroughly and should be as accurate as possible, discounting errors in filings on behalf of the airlines themselves.

12.5.2 The Phase-in Methodology for the Small Population Case

The population of jet-operating new-entrants posed a number of practical problems. One was the establishment of adequate number of carriers in the two groups of the dichotomous observed variable due to the small population. Another was the large proportion of failed carriers. Based on the data presented in previous chapters one can easily infer that many jet operating new-entrants were quite successful for a period in their life-cycle. Based on this assumption it was deemed appropriate to divide the life-cycle of a failed carrier into phases of three years and handle each phase as a separate module for entry as *failed* or *non-failed*. The following paragraphs will provide detailed analogy of the method developed and applied in the study.

Figure 12-1 Life-cycle Phase-in Group Inclusion[523]



Note: non-failed = nf; failed = f.

The first phase is when the carrier has operated for three complete years, which was the minimum operating life for inclusion in the data-base. The second phase includes carriers that have operated for at least seven years.[524] However, carriers failing anytime during year t+5 to t+7, will be included only as failed counting from the last full financial year and backwards three years. For example, a carrier failing in the middle of year t+6, is included as failed and years t+5, t+4 and t+3 are included in the data-base. If a carrier fails, however, in year t+8, it will be included twice, first as non-failed by including years t+2, t+3 and t+4 and then as failed counting years t+5, t+6 and t+7. Year t+1 is then counted as slack for a partial year of operations. A carrier operating successfully through all four phases will be included four times in the data-base as successful, thus, providing a contrast to carriers that fail during each of its successful phases. Table 12-5, shows clearly the decision rule for determining whether the set should be included as *failed* carrier or *non-failed* carrier.

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[523]Please note that this selection algorithm is only pertinent to the data-base analysis, not the questionnaire survey.

[524]These phases are constructed for convenience in building the model and do not have theoretical basis. In fact it can be alleged that there are actually four phases of failure; initiation failure phase - when the airline never gets off the ground; start-up failure phase - when the airline is undercapitalised and fails within few years; growth failure phase - when the airline grows too fast or too slow; and mature failure phase - when the airline has reached large size and starts to expand into riskier markets to sustain growth.

Table 12-5 Data Set Selection Rules for Inclusion in The Analysis

Non-failed	*Failed*
nf1, nf5, nf8	nf10 - f3
nf2, nf6	nf9 - f2
nf3, nf4	nf7 - f1

12.5.3 Selection of Ratios

Selection of ratios and other measurement variables in the analysis was divided into three distinctive parts: (i) financial ratios; (ii) non-financial ratios; and (iii) ratios composed of one financial and one non-financial element, termed as mixed.

The construction of mixed ratios was based partially on the assumptions put forth by Doganis[525], namely that a cost unit should be part of a ratio supposed to measure efficiency. In addition, the factor of stage length and aircraft size was observed as important. Doganis makes the use of available tonne kilometres (ATK) rather than available seat kilometres (ASK) the fundamental part of many of the ratios presented in his article. As the ATK was not readily available to the researcher, the alternative available seat kilometres was used. This alternative was further reinforced on the basis of the tendency US airlines to base most of their income on the carriage of passengers rather than cargo.

Selection of financial ratios was based primarily on previous studies of effective financial ratios for failure prediction primarily derived from Chen and Shimerda[526] and Davis and Kay[527] for variables related to *added value*. No attempt was made to produce a larger set of financial variables than presented in the two named studies.

The non-financial variables have no cost or revenue element associated with the exception of *% Non-scheduled*, that is calculated on the basis non-scheduled revenues as a percentage of total revenues. Non-financial variables can be divided into two parts *industry-specific* and *environment* related. The industry-specific variables were based on a proposed practice on measuring performance of airlines as reported by Doganis.[528] The environment variables were based on a forecasting model of the influences of the economic environment on air transport demand.[529] A priori assumption was that disposable income, interest rates and fuel costs would represent this influence adequately in the study. These were represented with changes in GDP, consumer prices, crude oil prices, spot fuel rates and interest rates.

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[525]Doganis, R. , Measure for Measure, Airline Business, May 1986, pp. 16-20.

[526]Kung H. Chen and Thomas A. Shimerda, An Empirical Analysis of Useful Financial Ratios, Financial Management/Spring 1981, pp. 51-60.

[527]Evan Davis and John Kay, Assessing corporate performance, Business Strategy Review, Summer 1990, pp. 1-16.

[528]Op. cit. (Doganis, 1986).

[529]Skýrsla flugmálanefndar (Aviation Committee Report), The Ministry of Transport, Iceland, October 1986, Part V, p. 3, by Sveinn Viðar Guðmundsson.

The rate of change was considered to represent the influence of the variable under consideration more clearly than if the actual value would be used.

Table 12-6 Ratios and Variables Derived from The Data-Base

Financial Variables

Net Worth/Total Debt
EBIT/Sales
Net Income/Net Worth
Current Assets/Total Assets
Long Term Debt/Total Assets
Total Debt/Total Assets
Revex
Current Assets/Total Revenue
ADV/Fixed Assets
Added Value
Labour Cost/ADV
ADV/Working Capital
Depreciation/ADV

Non-financial Variables

Industry-specific

Load-factor
% Non-scheduled
Average stage length
Aircraft Departures/Total Personnel
Aircraft Hours/Total Personnel
Weight Load-factor
Average no. of seats per dep.
Average daily rev. hours
Distance per hour flown
Average passenger haul

Environment

Percent change in GDP
Change in consumer prices
Change in crude oil prices
Spot fuel rate (JetA/Jet A1)
Change in spot fuel prices
Interest rate
Change in interest rate

Mixed Variables

Yield
Fuel Cost/ASK
Dir. Op. Exp./ASK
Ind. Op. Exp./ASK
Maintenance/ASK
Tot. Op. Exp./ASK
Depreciation/ASK
Operating Rev./Employee
Tot. Op. Exp./Employee
ASK/$1000 Wages
ASK/$1000 Op. Exp.
Pax rev./RPK (Pax yield)
Revenue/Passenger
Operating profit/ASK

12.5.4 Significant Differences Between Groups

Of the 48 ratios and variables tested only six showed significant difference between failed and non-failed carriers. All of these ratios are highly significant at the $p < .005$ level, with the exception of the ratio of *depreciation to ASK* that was significant at the $p < .05$ level and *long-term debt/total assets* that was significant at the $p < .1$ level.

Table 12-7 Significant Differences Between Failed and Non-failed Carriers

Ratio/Variable	*Population*	*Mean*
Net-worth/Total debt	Failed	-.0056***
	Non-Failed	.5719
Ebit/Sales	Failed	-.1082***
	Non-Failed	.0558
Total debt/Fixed assets	Failed	1.2285**
	Non-Failed	.6693
Revex	Failed	.9037***
	Non-Failed	1.0486
Depreciation/ASK	Failed	.0028*
	Non-Failed	.0044
Operating expense/ASK	Failed	-.0067***
	Non-Failed	.0036
Long term debt/Total assets	Failed	.5592Ψ
	Non-Failed	.3875

Note: *** = $p < .001$; ** = $p < .01$; * = $p < .05$; Ψ = $p < .1$.

12.5.5 Models Derived from Data-Base Variables

All the five models presented in Table 12-8, provide high overall classification, while the *financial* model (DB1) has slightly higher Type 1 error than the other models,

with the exception of the *non-financial* model (DB5). Model DB5 had highly significant model Chi-Square, while the other models had very highly significant model chi-squares. The pseudo-R^2 ranged from .48 for model DB5 to .84 for the *mixed2* model (DB4).

Table 12-8 Models for Variable Sets One Year Prior

	Financial1 *Model DB1-1*	*Financial2* *Model DB2-1*	*Mixed1* *Model DB3-1*	*Mixed2* *Model DB4-1*	*Non-financial* *Model DB5-1*
	Ebit_Sal	Revex	Maintena	Operatin	Average1*
	-49.0844**	-13.8773	.-310.362	-2053.89	-.0396
	Constant	ADV_Fixe*	Operatin*	ASK_$101	Aircraft*
	-.0386	-8.7176	-1223.04	0.000054	-.3580
		Total_De*	Constant	Tot._Rev	Distance$^{\Psi}$
		21.4537	1.8685	-.0406	-.0231
		Long_Ter$^{\Psi}$		Constant	Aircraf1*
		-22.4908		-4.1067	.2345
		Constant			Average3
		10.7039			.0020
					Load_Fac*
					-20.096
					@_Non_Sc$^{\Psi}$
					-12.9935
					Change_2$^{\Psi}$
					-9.1595
					Constant*
					30.9817
-2 Log Likelihood	15.309	14.098	9.915	7.802	25.779
Goodness of Fit	29.201	20.428	10.310	6.753	25.846
Classification					
F NF	94.44 88.89	94.44 94.44	94.44 94.44	94.44 94.44	83.33 83.33
Total	91.67	94.44	94.44	94.44	83.33
Model Chi-Square	χ^2_2= 34.598***	χ^2_2= 35.809***	χ^2_2= 39.992***	χ^2_2= 42.105***	χ^2_2= 24.128**
Pseudo R^2	.69	.72	.80	.84	.48
n	f 18 nf 18	f 18 nf 18	f 18 nf 18	f 18 nf 18	f 18 nf 18

Maintena = maintenance costs/ASK; ADV_Fixe = Added value/fixed assets; Total_De= Total debt/Fixed assets; Long_ter= long-term debt/total assets; operatin= operating profit/ASK; ASK_$101=ASK/$1000 in wages; Tot._Rev=Total revenue/Pax; Aircraft=aircraft departures/total personnel; Distance= distance per hour flown; Aircraf1=aircraft hours/total personnel; average3=average passenger haul; @_Non_Sc = percent total ASK non-sheduled; Change2 = change in spot fuel prices; Ebit_Sal = Earnings before interest and taxes/Sales; Revex = Revenues/Expenses; Load_fac = load factor; Average1 = average no of seats per departure.

Two years prior to failure the overall classification was dramatically reduced for all models, while the *financial2* and *non-financial* models gave the best results,[530] 75.0 and 69.44 percent overall classification, respectively. Type 1 error was quite different between the two, or 22.2 and 33.3 percent. Type 2 error was conversily, 27.8 for both models.

[530]Please bear in mind that, unlike the questionnaire based models, the variables obtained from the empirical selection into the one year prior models are tested two and three years prior, rather than having new variables entering.

Table 12-9 Classification Results Two Years Prior

	Financial1 *Model DB1-2*	*Financial2* *Model DB2-2*	*Mixed1* *Model DB3-2*	*Mixed2* *Model DB4-2*	*Non-financial* *Model DB5-2*
	Ebit_Sal*	Revex	Maintena	Operatin	Average1
	-9.8130	-3.2898	-.0000032	-.0000753	.0043
	Constant	ADV_Fixe	Operatin	ASK_$101	Aircraft*
	-.0517	-.0747	-31.5307	.000047	-.1456
		Total_De	Constant	Tot._Rev	Distance
		4.8552	.7216	-.0056	-.0086
		Long_Ter		Constant	Aircraf1Ψ
		-3.8757		-.3986	.1419
		Constant			Average3
		1.3234			.0003
					Load_Fac
					-8.1492
					@_Non_Sc
					-1.4555
					Change_2
					4.5861
					Constant
					9.8932
-2 Log Likelihood	44.265	38.907	49.049	7.802	34.621
Goodness of Fit	34.987	30.848	35.934	6.753	30.552
Classification					
F NF	61.11 66.67	66.67 72.22	77.78 44.44	61.11 50.00	77.78 72.22
Total	63.89	69.44	61.11	55.56	75.00
Model Chi-Square	$\chi^2_7 = 5.642^*$	$\chi^2_7 = 11.00^*$	$\chi^2_7 = .858$	$\chi^2_7 = 1.525$	$\chi^2_7 = 15.286^\Psi$
Pseudo R^2	.11	.22	.02	.03	.31
n	f 18 nf 18	f 18 nf 18	f 18 nf 18	f 18 nf 18	f 18 nf 18

Please refer to Table 12-8 for a key to the variable names.

It is surprising how poorly the *financial* model perform in view of the emphasis placed on good performance of such models in prior research. Thus, it must be concluded that non-financial variables do provide better classification results for this sample further away from bankruptcy than one year, than financial variables. One possible explanation of this discrepancy, is 'window dressing' of financial results. Such actions on traffic data are not as readily practiced or possible.[531]

The pseudo-R^2 is adequate for the DB5-2 model, but the model yields non-significant model chi-square, while the DB2-2 model had significant chi-square but low pseudo-R^2. Significant coefficients were *Ebit_Sal* in the *financial1* model, *Operatin* in the DB4-2 model and *Aircraft* in the DB5-2 model.

[531] U.S. airlines are required by law to file financial, personnel and traffic data with the D.o.T. In some cases, however, airlines become delinquent in such filing, which in itself could be an indication of financial distress.

Three years prior the *non-financial* model is still providing better results than the *financial2* model, producing 72.2 percent overall classification compared to 66.67 percent for the latter model. The model chi-square is not significant although the classification result was superior to other models presented, including the significant *financial2* model. Significant coefficients included *Aircraft hours per employee* in model DB5 and *Added Value/Fixed Assets, Total Debt/Total Assets and Long Term Debt/Total Assets* in model DB2. The pseudo-R^2 indicates that the models DB5 and DB2 are performing much better than the rest, although, the values are not particularly good, as expected.

Table 12-10 Classification Results Three Years Prior

	Financial1 *Model DB1-3*	*Financial2* *Model DB2-3*	*Mixed1* *Model DB3-3*	*Mixed2* *Model DB4-3*	*Non-financial* *Model DB5-3*
	Ebit_Sal	Revex	Maintena	Operatin	Average1
	-4.0177	2.5342	-23.5084	-.00000408	-.0143
	Constant	ADV_Fixe*	Operatin	ASK_$101	Aircraft*
	-.0125	-2.1062	-.00000177	.00006554	-.1034
		Total_De*	Constant	Tot._Rev	Distance
		11.6443	.4535	.0062	.0002
		Long_Ter*		Constant	Aircraf1*
		-11.819		-1.2543	.1297
		Constant			Average3
		-4.5059			.0008
					Load_Fac
					-14.0717
					@_Non_Sc
					1.1717
					Change_2
					2.7637
					Constant
					7.9386
-2 Log Likelihood	47.239	39.730	49.512	47.135	36.593
Goodness of Fit	34.854	32.026	36.013	35.735	31.440
Classification					
F NF	44.44 77.78	61.11 72.22	77.78 44.44	61.11 66.67	72.22 72.22
Total	61.11	66.67	61.11	63.89	72.22
Model Chi-Square	χ^2_7= 2.667	χ^2_7= 10.176*	χ^2_7= .395	χ^2_7= 2.772	χ^2_7= 13.314
Pseudo R^2	.05	.20	.01	.06	.27
n	f 18 nf 18	f 18 nf 18	f 18 nf 18	f 18 nf 18	f 18 nf 18

Please refer to Table 12-8 for a key to the variable names.

12.6 Practical Application of The Models

12.6.1 Prediction Enhancement Through Model Combination

Table 12-11 shows predicted probabilities for the airlines[532] that appeared both in the questionnaire survey and the data-base. The main conclusion from the table is that the combination of models from varying sources enhances financial distress and failure prediction. This is obvious as there is usually conformity of predicted probabilities of individual raters in the questionnaire survey and the predicted probabilities for the associated airline derived from the data-base models. In the few cases where there is not conformity, like case 108, there is conformity, however, of the two data-base models. In the cases where there is large discrepancy between the financial and non-financial model, like cases 115, 122, 301 and 304, the explanation can be sought in the type of route strategy adopted by the respective airlines. Case 301 and 304 had highly efficient route systems, while airlines 301 and 304 had services heavily geared to business travellers with all the inefficiencies that are associated with such strategy. As a result, these will be predicted as bankrupt if the *non-financial* model is considered in isolation.

The predicted probabilities of financial distress depicted for QI at airline 122, implies management difficulties, although, other aspects of the operation seem to be in good condition. Such an airline should be watched carefully as the management difficulties could contaminate the financial and operation aspect of the airline in the near future. Actual research on the airline involved confirms the findings. A reverse situation occurs for case 108, where predicted probabilities for QI and QII imply management characteristics and emphasis of a non-distressed firm, although both the *financial* (DB2) and *non-financial* (DB5) models classify the carrier as failed. In reality this finding is confirmed by research, as the carrier was presenting poor financial results at the time and operating inefficient route system. Apparently, the management aspect of the airline is non-characteristic of distressed firms, meaning that the firm is either exceptional or about to turn-around. Such a firm should be watched carefully by stake-holders.

The combination of four models can also warn the practitioner of possible conflict among top managers as can be seen for subject 6 of airline 108 and subject 6 of 118. Such cases indicate highly differing views on the airline's management reality, necessitating further research into the possible cause. Furthermore, the use of the four distinctive models will reduce the possibility of misclassification of extreme outliers of a single model, that are uniformly classified by the other three models. Furthermore, such combination of models will indicate if management problems are present although still not affecting financial performance or operation efficiency.

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[532]Please note that as confidentiality was assured in the questionnaire survey, no disclosure is made as to the identity of the airlines involved in the questionnaire survey.

Table 12-11 Prediction Enhancement Through Model Combination

Case #		*Q1*	*QII*	*DB2*	*DB5*
		Predicted Probabilities			
104 Distressed				0.99	1.00
	Subject a	0.70	0.99		
	- b	0.65	1.00		
	- c	0.90	0.98		
	- d	0.59	1.00		
105 Distressed				0.69	0.96
	Subject a	0.88	0.92		
	- b	1.00	0.63		
	- c	0.75	0.60		
	- d	0.99	0.82		
	- e	0.99	1.00		
108 Distressed				0.94	1.00
	Subject a	0.01	0.01		
	- b	0.03	0.87		
	- c	0.00	0.01		
109 Non-distressed				0.03	0.33
	Subject a	0.00	0.06		
115 Non-distressed				0.01	1.00
	Subject a	0.01	0.06		
118 Non-distressed				0.00	0.20
	Subject a	0.02	0.00		
	- b	0.83	0.00		
	- c	0.27	0.00		
120 Non-distressed				0.19	0.01
	Subject a	0.08	0.00		
122 Non-distressed				0.01	0.99
	Subject a	0.80	0.00		
	- b	0.31	0.00		
	- c	0.49	0.08		
301 Failed				0.63	0.08
	Subject a	1.00	0.82		
304 Failed				1.00	0.28
	Subject a	1.00	1.00		
306 Failed				0.94	1.00
	Subject a	1.00	0.93		
307 Failed				1.00	1.00
	Subject a	0.93	0.99		
313 Failed				0.98	0.57
	Subject a	0.84	1.00		

Please note that distress and non-distress is based on financial data until 1993.

12.7 Conclusion

The null hypotheses, that all the sub-sets of variables would provide the same classification, can be rejected on the basis of the varying classification ability of the models. This result is valid for the Past, Present and Future variable sub-sets of the questionnaire survey Part II. The same conclusion was obtained for the sub-sets *financial, mixed* and *non-financial* in the data-base models.

The best predictor variables based on model Q1 are the factors: *Lack of capital will not limit our growth*, *Everyone in our airline understands our long term aims and objectives* and *Employees are rewarded for taking actions that benefit our customers*. For models Q2 to Q7, taking only into consideration the *past*, the best predictors were: *Yield management system, Hub and spoke operations, Investor attitudes towards the airline* and *Service quality*. Turning to the *present* and the

future the best predictors are *Job rotation*, while *Expansion into new markets* and *cost reduction* perform well in the latter time period only. Other significant factors in the *past* were *freight operations*, *decentralised organisation structure* and *market-share*. In the *present* it was *flexible job descriptions*, *freight operations*, *market-research* and *media advertising*. Finally, in the *future* it was *market-intelligent information and communication system*, *employees productivity* and *frequent flyer programs*. The factor that appeared in all three time periods was *job rotation*, while *freight operations* and *hub and spoke operations* appear in models of two time periods.

Looking at the data-base models, the best predictors are *Earnings before tax and interest* divided by *sales*. This variable had very high discrimination ability of the dichotomous variable. Other significant variables where *added value* divided by *fixed assets*; *total debt* divided by *fixed assets*; *operating profit per available seat kilometer*; *aircraft departures per employee*, *distance per hour flown*, *aircraft hours per employee* and *load factor*.

Qualitative financial variables are poor predictors of financial distress and airline failure. Raters of qualitative statements show dissipating reliability from the past (experience) into the future (projection). This is due to reduced information and the uncertainty associated with the unknown. This phenomen appears in less variation in responses of the two groups under observation. The shift in emphasis on individual variables should, however, not be undermined as an indicator of future trends in management emphasis, given large enough sample of raters.

The combination of three model sources: financial data-base, non-financial data-base and questionnaire survey; improves the information content and accuracy of failure and distress prediction.

13. Discussion of Findings

13.1 Introduction

In this final chapter the overall findings will be brought together in order to examine them within the framework of the Underlying Model of Analysis presented in Chapter 1. Furthermore, the limitations of the failure prediction models will be discussed, especially in terms of how such models can be applied. Then the implications of the findings, will be discussed, in terms of the European case. As with most research many more questions appear than are answered, thus, a section on further research is presented. Finally, there will be a general discussion on the research itself.

13.2 General Conclusions - Critical Factors

13.2.1 Introduction

In the following sections each *critical factor* will be presented and discussed. In order to facilitate the reading, these factors will be italicised. It can be useful to go back to the opening chapter and familiarise oneself again with the Underlying Model of Analysis and examine how these critical factors are distributed among the components of that model. However, it is important to note that this inventory of critical factors is not altogether unique in terms of the factors derived from the failure prediction models, as there could be other factors that are just as good or almost as good predictors of failure or non-failure, that are not selected into the models, but are close to be included.

It is important to note that critical factors can be environment influence, causal factors and symptomic factors. As will be explained in Sections 13.2.8 and 13.6, managers must respond differently to these different sources of critical factors.

13.2.2 Management and Organisation Factors

The fundamental conclusion of the thesis is that any firm's success or failure is determined by the quality of management. Management as such is subject to various constraints that limit their alternatives, however, it is exactly the management of these constraints and the ability to overcome the resulting limitations that distinguishes the good performers from the poor performers in the long-term. The key to that ability is careful planning, analysis (research), information gathering and exceptional ability to utilise the employee resource to its outmost. The founders of new-entrant airlines have in almost all cases had extensive experience in the airlines before starting their

own, in that sense the initial risk has been less than if the founder was entering an entirely new industry. Thus, the alternative operating formats compared to that of the incumbents has usually been based on prior experience within other airlines, rather than being thought out by an complete outsider. The most important aspect of this alternative methods has been better *utilisation of employees* through cross-utilisation programs, given that such programs do not go to the extreme, because then there will be inefficiencies relating to training and quality. Furthermore, the *division of the work-force* into smaller units of responsibility that allow comparison of performance, enhances performance at larger airlines and permits the retention of some of the motivating characteristics of smaller organisations.

To make the airline's *long term aims and objectives* clear to the employees is important for successful firms, due to the motivation it provides and concentration of efforts. Furthermore, to manage, select and motivate staff is important part of achieving a successful organisation. The staff function must approach the exceptional level in order to distinguish between the successful and the distressed.

How the management arrives at its decisions is important for survival, too much emphasis on *group consensus* is not beneficial for the well-being of the firm. As group consensus involves too much time and risk aversion that leads to lack of innovation.

Comparatively much *decentralisation* and *job rotation* is apparently not beneficial for the organisation, as it characterises distressed new-entrant airlines to a greater extent than non-distressed. Too frequent changes in employees job responsibilities are probably causing lack of quality due to the employee's constant process getting familiar with new tasks reducing his productivity. Furthermore, decentralisation without very clear objectives and vision cannot yield what it is supposed to achieve, thus, leading to chaos. These two factors, decentralisation and job rotation, proved to distinguish well between the two groups of carriers in the failure prediction models presented. The third and fourth factors that appeared in the models were *flexible job descriptions* and *employee 's productivity* both highly related as one is the function of the other.

13.2.3 Marketing and Strategy Factors

Controlled growth is an important ingredient of non-failure for new-entrants. Extremely fast growth places great demand on the airline's resources that eventually leads to inefficiencies, as well as strategic alterations that cause serious problems for the airline. *Market-share* is important, but only on the micro-level, meaning that overall market-share is not important, but market-share on individual airports and routes is important. Large market-share at airports is especially important trait of a new-entrant in order to be able to fend off competition of the larger carriers.

Comparatively *Low-fares* are important during entry, but they have to be backed up by *comparatively high quality* in order to maintain an advantage when the incumbent matches or beats the fares offered by the new-entrant. Extreme emphasis on *low-*

costs and therefore cost control is a fundamental trait of a new-entrant. This control has to be achieved, however, without sacrificing quality. The non-failed and non-distressed new-entrants are comparatively more *customer orientated* both in terms of *fulfilling customer needs* and *provide innovative features* in their service. Through this ability, non-distressed carriers achieve comparatively greater customer loyalty that reinforces their non-distressed status. The non-distressed carriers spend *more resources on planning* new markets, reducing the risks involved. Non-distressed carriers are more marketing orientated and utilise the tools of marketing to a comparatively larger degree than distressed carriers. Such tools being: *media advertising, brand image* and *service quality.* Furthermore, non-distressed carriers are more prone to *expand into new markets* than distressed carriers, but such entry is based on careful analysis and planning that *distressed* carriers emphasise to a lesser degree. Finally, non-distressed carriers stay independent as they emphasise *alliances* and *merger and acquisition to gain market-share* to much lesser degree than distressed carriers. This indicates that such programs affect the longevity and financial well-being of new-entrants negatively to an extent.

The questionnaire based failure prediction models came up with seven marketing related critical factors: *Alliance with the incumbents*, *market-share*, *market research, frequent flyer programs*, *service quality*, *media advertising* and *expansion into new markets*. The first four are negatively related to success while the remaining three are positively related. Although the first two factors listed above are good in segregating the two groups of carriers it does not indicate that these aspects should be de-emphasised by the airlines, rather it is an indication that distressed carriers emphasise those more regardless of the factors causal relationship to the distress present. This means that these factors are critical, but the questionnaire findings do not imply how or why.

The data-base failure prediction models came up with four critical factors associated with marketing: *Load-factor*, *average passenger haul, percent ASK non-scheduled* and *average seats per departure*. The load-factor coefficient in the model has negative sign meaning that there is negative relationship with non-failure. This is because many of the failed carriers had relatively high load-factors, that must have been achieved by too low fares. Average passenger haul is positive, however, meaning that the longer the distance each passenger is carried the better for the airline's results. The third factor, related to the level of non-scheduled operations, is negatively related to non-failure. This means that the less the carrier is involved in charter operations the better. The relationship is only to an extent, as charter operations as pure by-product can not harm the profitability of the carrier, but scheduled operations as a by-product, probably does harm the carrier involved. The last factor, 'average seats per departure,' is negatively related, indicating that carriers operating smaller equipment fared better than those operating larger equipment. The influence of the former charter-based new-entrants is probably reflected in this finding, due to their very poor results.

13.2.4 Financial Factors

Lack of capital is a greater limiting factor of growth for distressed carriers than non-distressed, although both groups seem to have problems raising capital to a sufficient degree. Distressed carriers emphasise *critical mass* more than non-distressed carriers. This implies that the resulting market-share building is based on lack of the necessary product traits that are the fundamental prerequisite of successful and profitable market-share building. As a result, these carriers enter too costly strategies aimed at market-share building primarily. In order to grow faster than their balance-sheet may allow, distressed carriers are more prone to use off-balance sheet financing of aircraft than non-distressed carriers. Perhaps the most important difference of the two groups of carriers is that non-distressed carriers emphasise *cost reduction* comparatively more than distressed carriers. This finding is striking in the light of the greater incentive of the distressed carriers to practice cost reduction.

Financial variables derived from the data-base failure prediction models, were in all cases ratios: *EBIT/Sales*, *Operating profit/ASK*, *Revenue/Expenses*, *Added value/Fixed assets*, *Total debt/Fixed assets*, *Long-term debt/Total assets*, *maintenance costs/ASK*, *ASK/$1000 in wages and Total revenue/Passenger*. Here we can see that the four first ratios are related to earnings, while the next two are related to debt. This means that the proportional earning capability of a new-entrant in relation to sales, expenses, fixed assets and output is critical for the airline in terms of survivability. The other two ratios have conflicting signs that might indicate collinearity. That in itself does, however, not change their status as being critical ratios. The general conclusion is therefore that *gearing* and *revenue as a proportion of resources applied* are critical factors. The critical ratio, maintenance costs, has a negative sign indicating inverse relationship with non-failure. The sign could be wrong, or that maintenance costs are lower for distressed carriers. The latter relationship would therefore reinforce the critics of deregulation that have maintained that maintenance would suffer as a result of increased competition. Unfortunately, this relationship can not be proved here, but further research on this issue is necessary. Available seat kilometres as a ratio to $1000 in wages indicates how much is produced in terms of employee costs. The sign is positive indicating a positive relationship with non-failure. The last ratio divides total revenues with the total number of passengers. This relationship is negative meaning that the higher the average income per passenger the less the survivability of the carrier. The relationship seems far-fetched, but it is not so. One only needs to point to the premium-service new-entrants and the long-haul new-entrants to support the relationship, as these had high revenue per passenger, but these carriers failed.

The ratio *net worth/total debt* did not appear in one of the failure prediction models, but the difference in this ratio between the two groups is very highly significant. The direction of the difference is in the order of smaller value for failed new-entrants. The same applies to *depreciation/ASK* that is significantly higher for non-failed carriers. The relationship is probably due to greater assets per operating unit (ASK) than that of failed carriers, sometimes referred to as critical mass.

13.2.5 Operations

Much emphasis on *aircraft utilisation* is characteristic of non-distressed carriers. The result of this emphasis is lower cost structure as high aircraft utilisation affects costs in almost all aspects of the airline. Conversely the non-distressed carriers emphasised *hub and spoke operations* to a much lesser degree than distressed carriers. That finding reinforces the importance of aircraft utilisation as hub and spoke operations lead to less aircraft utilisation than direct-service does.

The failure prediction models provided one more critical factor, *freight operations* in the addition the factors already mentioned. That factor is positively related to non-distress, implying that freight operations are an important operating feature of non-distressed carriers. This implies that greater utilisation of the aircraft by carrying freight is an important additional revenue source for new-entrant airlines, reinforcing non-distress.

The data-base failure prediction models came up with number of operations related ratios and factors: *Aircraft departures/total personnel*, *aircraft hours/total personnel* and *distance per hour flown*. The first two are efficiency ratios of operations in terms of employee input. This aspect comes up again and again showing that aircraft utilisation is of an outmost importance in running an airline. However, the previous ratio has negative sign indicating that a high ratio of aircraft departures per employee is negatively related to non-failure. Carriers having relatively many departures per employee have therefore been more prone to bankruptcy compared with those having a lower ratio. It is possible that this inverse relationship is caused by poorer service quality of such carriers. Further research must be carried out to establish such relationship. The latter ratio, aircraft hours per employee has, however, positive sign. That indicates, as expected, that an aircraft in the air is more productive than an aircraft on the ramp. However, one can expect airlines having longer average sector lengths to have more flight hours per employee than short-haul carriers.

13.2.6 Information- and Communication Factors

In the Underlying Model of Analysis the information and communication function was placed at the centre, like a heart in an organism. Strangely enough, the distressed carriers emphasised this function more than non-distressed carriers. This could indicate the inadequacy of the information function at the distressed carriers, guiding an increased emphasis on this function. The factors that yielded difference between the two groups were: *Computer reservation systems*, *Yield management systems* and *market-intelligent information- and communication system*. As these factors imply, any disadvantage on these issues would cause the disadvantaged airline to emphasise the factor greatly until such disadvantage was eliminated. In that light it is not surprising that distressed carriers are emphasising these factors to a greater extent that non-distressed carriers.

The two latter factors appeared as critical in the failure prediction models, both negatively related to success. As explained before this apparently wrong sign is due

to the greater emphasis of distressed carriers on these factors in an attempt to bring these factors up to a standard.

13.2.7 Environment

As expected *investors' attitudes towards the new-entrant* are emphasised to a greater extent by distressed carriers. This implies that the airline will be more careful about information released to stake-holders and the media in order not to harm its outside financial resources unnecessarily. The same goes for *favourable attitude of travel agents* as if the travel agents alarm is raised as to the financial health of the airline, there will be a substantial drop in bookings. Managers at distressed carriers are more prone to *feel out of control* in terms of shaping their airline's destiny. Such attitude causes less motivation, as it is highly related to alienation and will lead to poorer results of the affected carrier.

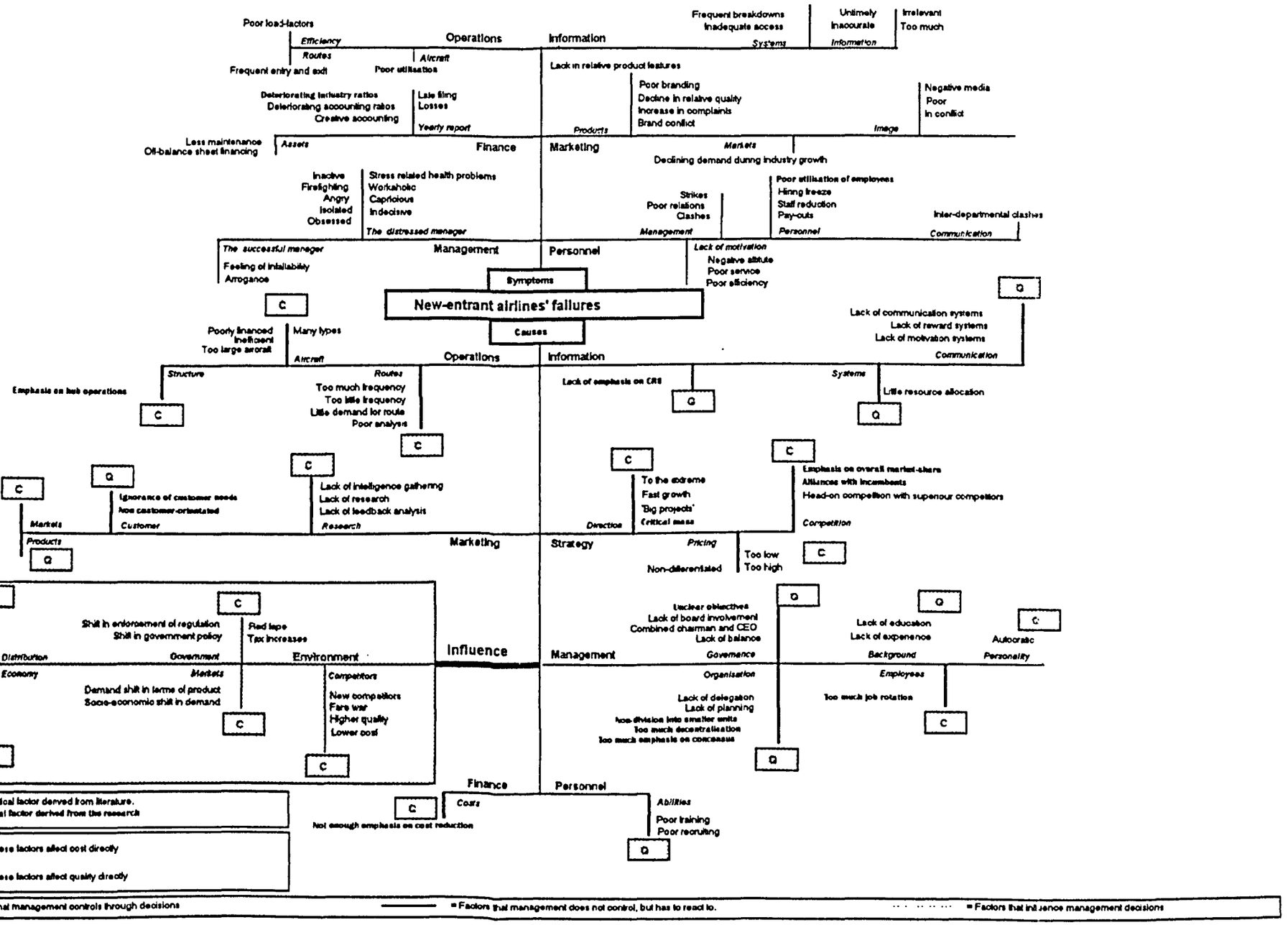
There was only one critical environment factor derived from the data-base models: *Change in spot fuel prices.* The negative sign shows that as spot aviation fuel prices increase, the worse off the airline is.

13.2.8 Discussion

The critical factors presented have a fairly even distribution among the components of the Underlying Model of Analysis, that proves that such model can be a useful for analysing corporate performance. Furthermore, these factors allow a more concentrated research on the causal relationship of these factors to airline performance.

In order to give an overview of the factors identified in the literature and in this research, Figure 13-1 was developed. The figure is constructed on the grounds of Argenti's hypothesis that corporate failure has two distinctive components, namely *symptoms* and *causes* of failure (see Section 9.4). The causes of failure are listed in the lower half of the figure, but the symptoms are shown in the upper half of the figure. Factors along bold lines in the diagram are directly controlled by management through its decision making. While factors along narrow lines in the causes section of the figure, are usually environment related. That is management has to make decisions in reaction to those factors rather than the being able to influence those with decision-making. Factors along the dotted lines, influence the quality of management's decisions. The little boxes indicate whether the group of factors next to it, influence *costs* or *quality*. Of course, one can infer that poor quality affects costs, however, in the figure an attempt was done to segregate these two in this way in order to emphasise the influence of critical factors on two of the most important aspects of running an airline.

Figure 13-1 The Causes and Symptoms of New-entrant Airline Failures



It must be made clear that the factors listed are not necessarily all factors that could possibly belong there. The figure represents, rather, those factors that appeared along the research process. Most of which, appear in Chapters 9 through 12. It must also be pointed out that most of the factors derived from the failure prediction models in this research, are critical factors for failure prediction. They do, therefore, not necessarily reflect the direct causal relationship to failure. As a result, many of the factors listed as critical factors do not appear in the figure.

As the diagram is in a way an overview of large part of the thesis, individual items will not be explained further here, but the reader is referred to the chapters of the thesis. However, it is necessary to discuss the distinction between causal factors and symptoms (see previous discussion in Section 9.4.2). We can conclude from the model presented in Figure 1-3, that management's decision-making determines a company's fate, making it the primary causal factor. However, in order to apply its decision-making function, management can apply many 'tools' that directly affect the company's performance. As a result, it is logical to look upon these tools as causal by nature. For example the management of an airline can increase flight frequency (tool) in an attempt to improve an airline's performance. Such change in the causal factor (tool) 'flight frequency' can affect the airline in a number of ways that appear as 'symptoms'. The symptoms in this case could be, if we examine the negative effects, deteriorating load-factor and deteriorating Revex ratio, just to name two. From the example one can determine quite clearly the distinction between causal and symptomic factors. It is enough to recognise that the load-factor can not be applied as a tool and is therefore not causal. Frequency, on the other hand, can be changed directly by the management and is therefore causal factor. Having made this conclusion one needs to decide whether the environment is causal or symptomic. In fact the conclusion is that it is neither. First, the management has no control over the environment variables (generally speaking) and can therefore not apply environment factors as tools. If the environment factors can not be adjusted by the management there are certainly not going to be any symptoms. Therefore, one must look upon environment factors as external influence, which the management can either decide to adjust to by applying its tools or not to do so.

13.3 General Discussion - Failure Prediction Models

13.3.1 Comparison of Classification Accuracy

Table 13-1 shows a comparison of the models derived from the data-base source, with models resulting from other research. What is apparent, as mentioned before, is that the non-financial model DB5-1 has much better traits further away from bankruptcy than the financial model DB2-1. Both models perform better than the Altman model in the third year. The models are, however, non-spectacular in terms

of classification accuracy but do give strong indications on the potential of future research of airline distress and failure prediction with regard to non-financial data.

The better trait of the non-financial model is probably due to the fact, that it is much harder to 'window dress' airline traffic data, than financial data. Furthermore, the non-financial data is more clearly influenced by the quality of management, strategy and the environment, than financial data. Thus, it is clear that the combination of the financial and non-financial models is a highly recommended practice in the case of airline failure and distress prediction.

The models could not be tested on a hold-out sample due to the small population, as a result they can not be compared to the other models in the table in that respect. There is, however, every reason to believe that the models will show poorer results under such circumstances, as the models usually do so. However, as the population of new-entrants increases, there is every reason to believe that hold-out tests could be carried out and, what is more, a new more reliable model developed with greater number of airlines in each group.

Table 13-1 Misclassification Rates of Bankruptcy Prediction Studies[533]

	Altman	Deakin	Blum	DB2-1 Financial	DB5-1 Non-financial
Meth.	MDA	Prob. MDA	MDA[534]	LR	LR

Years prior to failure	*Overall*	*(2) (3) Type I*	*II*	*(4) Overall*	*Type I*	*II*	*Overall*	*(1) (5) Type I*	*II*	*Overall*	*Type I*	*II*	*Overall*	*Type I*	*II*
		%						%							
	(27%)	(4)	(21)	(22%)			(5%)	(4)	(7)	5.5%	5.5	5.5	16.67%	17	17
1	5%	6	3	3%	3	3	7%								
				(6%)			(20%)	(16)	(24)	30.6 %	33	28	25.0%	22	28
2	18%	28	6	4½%	3	6	12%								
				(12%)			(30%)	(29)	(32)	33.3%	39	28	27.8%	28	28
3	52%	-	-	4½%	6	3	20%								
				(23%)			(20%)	(12)	(26)						
4	71%	-	-	21%	16	25	14%								
				(15%)			(31%)	(33)	(29)						
5	64%	-	-	17%	25	9	17%								

(1) Figures in parentheses test against holdout sample. Figures not in parentheses are tested against same sample from which dichotomous classification test was estimated.
(2) Type I error is misclassifying a failed firm. Type II error is misclassifying a non-failed firm.
(3) Type I and II errors were only presented for the first two years.
(4) Figures in parentheses represent test against randomly selected sample. Figures not in parentheses represent test against sample from which discrimination function was estimated.
(5) Error rates based on Discriminant function for four years of data.

[533]Source: Christine V. Zavgren, The Prediction of Corporate Failure: The State of Art, Journal of Accounting Literature, Vol. 2, 1983, p. 4.

[534]Blum did not utilise searching to determine the ratios for the prediction model. He used a concept of ratio selection like Beaver based on the firm being 'a reservoir of financial resources with the probability of failure being expressed in terms of expected cash flows.' (Source: Altman 1993, p. 224.)

13.3.2 The Application of The Models

As with any instrument of some complication instructions have to be issued to the user. The use of a failure prediction model is no different in this aspect. In fact one can allege that a failure prediction model can be of a great harm if improperly administered. In view of that the following sections should be observed carefully by the potential user of the models presented here.

There are number of guidelines that must be adhered to before a failure prediction model is applied for prediction of financial distress or bankruptcy:

(i) The models must be used on the same type of companies as were included in the original sample. To use a model specified for new-entrant airlines on a large airline like American would be an unacceptable use of the model, giving a potentially unreliable result.

(ii) The models must only be used on airlines in the same geographical region as those airlines in which the original sample airlines operate. To use a model based on US carriers on UK carriers leads to an unreliable results.[535]

13.4 Implication of Findings for The European case

13.4.1 Critical Factors Differing Between European and US New-entrants

As discussed already the application of a bankruptcy model to other countries than that of the sample firms is not recommended. In the case of the questionnaire, however, European new-entrants were included and the derived model do therefore apply to both the European and US cases. As a result, it is of some importance to establish whether the critical factors established so far, differ between European and US new-entrant airlines.

Examining significant differences between European and US new-entrants listed in Appendix-H, reveals that European new-entrants have significantly higher means for: *interlining agreements*, *market-share*, *achieving critical mass, yield management systems* and *computer reservation systems.* US new-entrant carriers have significantly higher means for: *delegation*, *job rotation and manager's incentive programs*. The statement, *our service has a range of features that make it distinctive*, has significantly higher mean for European carriers.

These critical statements have to be viewed, therefore, in the view of potential difference in intensity between the two geographical areas.

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[535]This is a fully acceptable statement for financial data due to differing accounting standards, but less so for models based on non-financial data and qualitative assessment like questionnaire surveys. The researcher found that operating strategy will have the greatest impact on extreme outliers of non-financial models not geography.

13.4.2 The Application of Failure Prediction Models to The European Case

As mentioned in the opening chapter it was decided that a failure prediction model was not viable for European new-entrants at this stage due to differing environments of the European Union countries and the differing Government policies on air transport. The groundwork presented in this thesis will, however, make the development of such models more straightforward for the European case. It must be noted, however, that the questionnaire based models do apply to the European case as presented in the thesis. The only limitation to their applicability is to recognise the differences in the factors as presented in Section 13.4.1.

13.5 Suggestions for Further Research

As with all research projects, each answered question leads to number of unanswered ones. Unfortunately the research had limitations both in terms of time and resources available to investigate interesting side-tracks. In order to give a general idea of areas where further research could be of a special interest, the following list was composed.

(i) Testing of the models on a new sample of new-entrant airlines, in order to test he prediction capability of the model on non-sample airlines.
(ii) Test further the reliability of the 'Phase-in' methodology by conducting a comparison test of two sufficiently large samples of companies, one subject to Phase-in' and an other to traditional sample selection. Such study would provide increased reliability in using this small population technique in failure prediction.
(iii) Separate the statements that show significant differences between the dichotomous groups from the rest and produce a short version of the questionnaire. This would probably improve the response rate and enable reliable testing as to their discrimination effectiveness.
(iv) Research further the 'Increased activity' phenomena and its biasing effect on questionnaire surveys among distressed firms.
(v) Establish the questionnaire methodology in failure and distress prediction by doing repeated surveys among same companies for three to five years or longer.
(vi) Establish the causal relationship of the *critical factors* with airline performance.

There are many more potential research projects that have been sparked by this research, but the six projects above are especially pertinent to the material presented in the thesis.

13.6 Research Discussion

13.6.1 The Research's Contribution

Regardless of the barriers discussed in the previous section, it is believed that the research is important, regardless of known and unknown limitations. First, by introducing an important methodology (Phase-in) of failure prediction for the small population case. Second, by introducing various sources of models that can be

utilised together in order to enhance prediction quality. Third, by introducing thoroughly the industry, the environment and characteristics of the population from which the models were derived. Fourth, by focusing the research on a segment of the airline industry, that practice is in many aspects uncommon compared to other research in this field, that is usually quite general in terms of inclusion of many diverse industry sectors (all manufacturing firms, all service firms, etc.). In fact failure prediction has been criticised by laymen on the basis of their inaccuracy when applied to various industry sub-segments. The answer to such problems is apparently to focus the research more into the various sub-segments and produce separate models for those. This research is an attempt at that and is important as such.

13.6.2 Conclusion

Much had been written about the new-entrant airlines in the United States during the early years of success, some were praised as marvels of business management others were criticised, but most felt that the new-entrants proved that deregulation was working. However, as the new-entrants started to disappear one after an other, those that praised got silent and the sceptics named a thousand and one reason for the new-entrant's airlines failures. It is hoped that this thesis will be of some value to those that want to ask questions like why and how, in this respect. Those are the ones that will be able to understand that the basis of success is knowledge on the causes of previous failures.

An important distinction between environment influence, causal factors and symptoms has been pointed out (see Section 13.2.8). Many of the findings in the thesis are related to the symptoms that result from the application of the causal factors. Thus, one must make it clear that managers should not attempt to forge changes in the symptomic factors in isolation but emphasise changes in the actual causal factors according to concrete analysis as to the impact that such change will have on the organisation. For example, if the load-factor (symptomic) has deteriorated it makes no sense to reduce flight frequency (causal factor) as an isolated attempt to raise it. Such move could in fact cause serious harm, as frequency is related to service quality and aircraft utilisation, to name just two factors. Thus, an attempt to increase the passenger load-factor, or any other symptomic factor for that matter, is a complex feat that involves many aspects of airline management.

If one wanted to give an prescription for success or avoidance of failure it would naturally appear here. However, the general conclusion of the thesis must be that no such prescription exists due to the dynamism of the airlines' interaction with its environment. Nevertheless, it is hard not to mention six critical factors worth emphasising to new-entrant airlines: (i) high relative quality; (ii) dominant market-share on routes and airports (usually only achievable on secondary routes and airports); (iii) high relative aircraft utilisation; (iv) high relative employee utilisation; (v) controlled growth in terms of maintaining item *(ii)*; low costs in terms of achieving items *(iii)* and *(iv)*; and (vi) resourceful innovation without going into the extremities.

Appendices A - N

Appendix-A New-entrant Airlines Market-share at 50 Largest US Airports

A-1 Southwest

Southwest's main base has been Houston's Hobby airport from the outset. The airline was virtually the only carrier serving that airport after Houston Intercontinental airport was established and attempts were executed to close down Hobby airport.

Table A.1 Southwest's Market-Share at Top 50 Airports

City/airport	*80*	*81*	*82*	*83*	*84*	*85*	*86*	*87*	*88*	*89*	*90*	*91*
Albuquerque	8.1	11.8	24.3	30.8	32.5	30.7	29.5	27.1	32.2	37.7	40.0	43.9
Denver	0	0	0	0.7	1.2	1.0	0.5	0	0	0	0	0
Detroit	0	0	0	0	0	0	0	2.0	2.9	2.4	1.5	1.1
El Paso	20.4	24.1	37.7	58.0	59.6	54.0	49.4	48.3	53.3	58.1	58.5	59.9
Houston Hobby	84.3	78.2	66.3	60.2	51.2	53.9	50.1	53.7	64.9	70.2	69.4	72.0
Houston Intercontin.	0.89	3.0	2.9	3.3	3.7	3.8	2.8	2.0	1.8	1.9	1.7	1.7
Indianapolis	0	0	0	0	0	0	0	0	0	4.1	5.7	6.1
Kansas City	0	0	4.4	6.4	4.5	4.5	5.1	4.8	6.0	7.4	11.3	12.8
Las Vegas	0	0	2.9	5.7	6.6	7.0	6.2	5.3	7.4	9.3	12.8	17.3
Los Angeles	0	0	0.4	2.3	3.0	2.9	2.5	2.8	3.5	4.3	4.6	6.5
Los Angeles					3.0	2.9	2.5	2.8	3.5	4.3	4.6	6.5
Midway	0	0	0	0	0	11.8	21.2	21.7	23.0	25.6	23.0	25.8
Nashville	0	0	0	0	0	0	5.4	7.4	7.2	7.7	8.1	5.7
New Orleans	11.5	14.5	15.8	14.6	12.0	13.9	8.5	7.9	13.2	16.2	15.6	17.1
Phoenix	0	0	7.8	14.2	13.8	13.1	13.4	14.4	19.1	22.1	21.8	24.7
San Diego	0	0	4.9	6.5	7.9	7.8	7.3	9.1	10.7	13.8	17.3	23.6
San Francisco	0	0	0.1	1.0	1.4	1.5	1.8	2.2	2.4	2.6	2.5	3.1
St. Louis	0	0	0	0	0	1.5	2.1	3.0	3.5	5.2	6.1	7.0
Total markets	5	5	11	12	13	15	16	16	16	17	17	17

Source: Julius Maldutis, 1991. Missing cells indicate years when the carrier was not operating to the destination or not in existance.

The decision was challenged by Southwest, giving the airline eventually a rather unique operating base in terms of location and limited competition. This special status of Hobby for Southwest is apparent in the market-share table as Southwest has 84.3 percent share in 1980, down to 50.1 percent in 1986, but rising to 72 percent again in 1991. The reduced share is due to competition from Republic until 1984 and Muse Air that was acquired by Southwest in 1985. From 1980 until 1991 Southwest adds 12 airports, belonging to the group of 50 largest, to its route network. Market-share in excess of 20 percent at the 50 largest airports was held at Albuquerque, El Paso, Phoenix, San Diego, Midway and Houston's Hobby. The only large airport it exited was Denver, which became a major hub of United and Continental.

A.2 People Express

People Express had one main hub at Newark where it had 50.4 percent share of total enplanements in 1985. The only other large airport where it had substantial share was Buffalo. What is striking is how many large airports it entered in a relatively short period of time. From 1981 until 1985 it entered seventeen large airports. The market-share at these airports was usually low or 4.1 percent on the average in 1985, if Buffalo and Newark are excluded.

Table A.2 People Express' Market-Share at Top 50 Airports

Airport City	*81*	*82*	*83*	*84*	*85*	*86*
Baltimore	2.7	7.7	8.1	5.6	4.6	2.9
Boston	1.1	3.1	1.1	8.1	7.6	5.7
Buffalo	5.6	12.2	16.3	26.9	25.0	20.4
Charlotte	0	0	0	0	1.3	1.4
Chicago O'H	0	0	0	0.7	1.7	1.5
Cincinnati	0	0	0	0	3.6	3.2
Cleveland	0	0	0	1.2	6.3	5.0
Dayton	0	0	0	0	2.0	1.8
Denver	0	0	0	0.1	1.1	1.7
Detroit	0	0	0	0.9	2.2	1.7
Ft. Lauderd.	0	0	0	0	2.7	3.5
Houston Hobby	0	0	2.2	8.6	6.1	3.6
Los Angeles	0	0	0	0.9	1.3	1.2
Miami	0	0	0	0.6	2.4	1.7
Minneapolis	0	0	0	1.1	1.2	0.9
Nashville	0	0	0	0	3.1	2.1
Newark	8.1	18.9	35.7	49.3	50.4	44.9
Orlando	0	0	0	0.1	3.3	2.2
Raleigh/Durham	0	0	0	0	3.1	5.7
Syracuse	4.3	13.0	18.4	23.4	16.1	11.4
Washington Dulles	0	0.9	8.4	7.2	8.5	4.5
Washington National	0	1.1	3.4	4.2	3.9	3.0
Total markets	5	7	8	16	22	22

Source: Julius Maldutis, 1991.

A.3 America West

America West was, as well as People Express, one of the wonders of deregulation, growing rapidly into a major carrier, but eventually running into financial difficulties and bankruptcy. Its main hub is at Phoenix Sky Harbour airport and its secondary hub is at Las Vegas McCannon airport.

Table A.3 America West's Market Share at 50 Top Airports

Airport City	*83*	*84*	*85*	*86*	*87*	*88*	*89*	*90*	*91*
Albuquerque	0.5	6.9	10.3	12.2	14.0	13.0	12.4	12.3	11.8
Baltimore	0	0	0	0	1.1	1.7	1.3	1.7	2.2
Boston	0	0	0	0	0	0	0	.9	1.7
Chicago Midway	0	0	0	2.2	4.5	0.04	0	0	0
Chicago O'Hare	0	0	0	0	0.4	0.7	0.8	0.9	1.1
Dallas/Forth Worth	0	0	0	0	0	0	0	0.2	0.7
Denver Stapleton	0	0	0	0.1	1.0	1.2	1.0	1.2	1.5
El Paso	0	0.8	7.9	10.9	10.5	9.9	10.4	10.1	9.0
Honolulu	0	0	0	0	0	0	0.1	2.2	2.7
Houston Intercontinental	0	0	0	0	0	0	0	1.3	1.5
John Wayne/Orange County	0	0	6.0	9.0	13.5	11.9	12.1	12.3	20.2
Kansas City	1.0	1.5	0	0	0	0.7	3.4	7.0	7.0
Las Vegas McCarran	0.3	2.8	4.8	10.6	27.4	33.7	34.7	39.7	40.2
Los Angeles	0.2	1.3	2.7	3.2	4.2	5.2	5.1	4.8	4.3
Minneapolis/St. Paul	0	0	0	0	0	0.5	1.2	1.1	1.3
New York JFK	0	0	0	0	0.6	1.9	2.1	2.4	3.2
Philadelphia	0	0	0	0.1	0.2	0.2	0	0	0
Phoenix Sky Harbour	2.6	18.2	34.6	40.4	44.8	44.1	43.3	45.8	46.1
Portland	0	0	0	0	3.1	3.4	2.9	3.8	5.5
St. Louis-Lambert	0	0	0	0	0	0	0	0	0.7
Salt Lake City	0	0.2	1.9	3.5	5.0	4.1	2.7	2.7	2.9
San Diego	0.2	3.1	4.9	6.5	7.5	9.7	10.9	10.8	9.5
San Francisco	0	0	0	0	0	0	0	1.1	2.9
Washington National	0	0	0	0	0	0	0.4	0.7	0.9
Total markets	6	8	8	11	15	17	17	21	22

Source: Maldutis, 1991

From 1983 until 1991 it entered 16 large airports, having average market-share of 4.5 percent if the hub airports are excluded. During the period it exited Midway and Philadelphia airports. At these two airports Midway Airlines and USAir governed the majority market-share respectively.

A.4 Air California

Air California had a major market-share at John Wayne airport, 66 percent in 1979 down to 30.8 percent in 1986 and 7.8 percent in the last year of operations. During the period it exited Las Vegas in 1982 and San Diego in 1979 but entered the latter airport again in 1986 along with Anchorage. The average market-share in 1986 was 4.5 if John Wayne airport is excluded.

Table A.4 Air California's Market-Share at 50 Top Airports

Airport City	*79*	*80*	*81*	*82*	*83*	*84*	*85*	*86*	*87*
Anchorage	0	0	0	0	0	0	0	2.0	0.9
John Wayne/Orange C.	66.0	63.7	60.0	55.0	42.5	34.8	30.8	30.3	7.8
Las Vegas	2.4	3.1	3.0	2.6	0	0	0	0	0
Los Angeles Intern.	0	0.9	2.4	1.9	2.0	3.4	4.0	4.4	1.0
Portland	0	6.3	9.4	6.6	8.2	7.1	9.3	9.3	2.0
San Diego	0.5	0	0	0	0	0	0	1.5	0.5
San Francisco	3.2	4.2	4.5	3.8	4.9	5.7	6.1	5.7	1.3
Seattle	0	0	1.8	1.7	1.8	2.5	3.7	4.0	1.0
Total markets	4	5	6	6	5	5	5	7	7

Source: Julius Maldutis, 1991.

A.5 Midway

Midway began operations from the under-utilised financially striven Midway airport and gained immediately dominant market-share. It reached high 89.4 percent share in 1982, a low of 64.6 percent in 1987, moving up to 69.0 percent in 1991.

Table A.5 Midways' Market-Share at 50 Top Airports

Airport City	*80*	*81*	*82*	*83*	*84*	*85*	*86*	*87*	*88*	*89*	*90*	*91*
Atlanta	0	0	0	0	0	0	0	0.2	0.3	0.3	0.3	0.4
Boston	0	0	0	0	0	0	0	0.5	0.7	0.9	1.7	0.9
Buffalo	0	0	0	0	0	0	0	0	0	0.2	2.3	0.04
Chicago Mid	69.5	84.9	89.4	85.8	75.7	69.1	68.8	64.6	64.7	64.8	69.3	69.0
Cincinnati	0	0	0	0	0	0.8	1.2	0.01	0	0	0	0
Cleveland	1.1	1.9	2.1	1.8	2.1	3.6	5.0	4.9	3.0	2.5	2.3	2.3
Denver	0	0	0	0	0	0	0	0.3	0.3	0.5	0.6	0.5
Detroit	1.0	1.4	1.5	1.9	2.1	2.0	1.9	2.5	2.6	2.4	2.3	1.7
Ft. Lauderd.	0	0	0	0	0	0.4	1.3	1.3	1.8	2.2	3.2	2.2
Indianapolis	0	0	0	0	0	0.04	1.1	1.0	1.5	0	0	0
Kansas City	1.6	2.7	2.3	2.2	1.7	1.8	2.4	2.5	2.7	3.3	5.0	3.9
Las Vegas	0	0	0	0	0	0	0	1.3	1.4	1.2	1.1	1.0
Memphis	0	0	0	0	0	0	0	0	0.3	0.9	0.6	0.1
Miami	0	0	0	0	0	0.5	1.0	0.9	0.8	0.9	1.2	0.5
Minneapolis	0	0.2	1.5	1.9	2.2	2.0	1.9	2.2	2.1	1.8	2.0	1.5
New Orleans	0	0	0	0	0	0.3	1.5	1.6	1.8	1.8	1.7	0.9
New York LG.	0.1	1.1	1.1	0.8	1.1	1.2	1.2	1.2	1.4	1.7	1.4	1.3
Orlando	0	0	0.2	0	0	0.8	2.0	1.6	1.1	1.3	2.6	1.6
Philadelphia	0	0.8	1.0	1.1	1.3	1.5	1.4	1.4	1.5	2.4	12.2	3.0
Phoenix	0	0	0	0	0	0	0	0.5	0.7	0.6	0.9	0.6
Pittsburgh	0	0	0	0	0	0	0	0	0.5	0.6	0.5	0.1
Tampa	0	0.1	0.7	0.3	0.2	2.3	3.3	2.4	2.0	2.1	3.3	2.1
Wash. Nation	0.5	1.1	1.0	1.0	0.9	1.2	1.7	1.7	1.8	1.9	1.9	1.5
Total markets	6	9	10	9	9	15	15	20	21	21	21	21

Source: Maldutis, 1991

Average market-share at other large airports was 1.31 percent in 1991 if Midway airport is excluded. It exited Cincinnati and Indianapolis during the period but Delta and USAir governed that airports respectively. Large airports served increased by 15 from 1980 until 1991.

A.6 Presidential

Presidential achieved no major market-share at any airport, but was able to gain 18.8 percent share at its operating base at Washington-Dulles during second year of operations. In 1989 it had exited all the large airports except its base airport. One of the reasons was a marketing-agreement with United that turned it into an United Express feeder carrier.

Table A.6 Presidential's Market-Share at 50 Top Airports

Airport City	*85*	*86*	*87*	*88*	*89*
Boston Logan	0.2	1.4	0.2	0	0
Indianapolis	0.6	1.4	0	0	0
Washington Dulles	2.8	18.8	7.2	8.7	5.7
Total markets	3	3	2	1	1

Source: Julius Maldutis, 1991.

A.7 New York Air

New York Air as well as Presidential had no major market-share at any large airport, until it moved its operating base from New York to Washington's Dulles airport, when it achieved 15.6 percent share in its last operating year. From 1980 until 1986 the carrier entered 10 additional large airports. Its average market-share in 1986 was 3.1 percent if Dulles is excluded.

Table A.7 New York Air's Market-Share at 50 Top Airports

Airport City	*80*	*81*	*82*	*83*	*84*	*85*	*86*
Baltimore Washington	0	0.3	2.8	0	0	0	
Boston Logan	0	3.9	2.6	3.1	4.9	6.5	5.9
Buffalo	0	1.4	1.3	0	0	0	0
Cincinnati	0	0.8	1.7	0	0	0.3	0.1
Cleveland	0	3.4	3.2	3.9	0.5	0	2.4
Detroit	0	0.7	1.6	2.1	3.1	2.3	1.4
Ft. Lauderdale	0	0	0	0	0	1.3	2.2
New Orleans	0	0	0	0	0.8	3.3	2.3
Newark	0	1.2	3.3	3.6	4.0	4.9	4.2
New York LG	0.1	6.7	5.4	6.1	6.8	6.2	4.5
Orlando	0	0.2	1.5	0.5	0.9	2.1	1.9
Tampa	0	0	0	0	0.1	1.3	2.0
Washington Dulles	0	0	0	0	0	12.2	15.6
Washington National	0.1	6.8	7.8	8.6	9.9	8.7	6.9
Total markets	2	10	10	7	9	11	12

Source: Julius Maldutis, 1991.

A.8 Air Florida

Air Florida had no substantial market-share at any large airport. Air Florida added two large airports New York La Guardia and Ft. Lauderdale. It exited Houston's Hobby airport that was governed by Southwest and New York's JFK airport at the

same time when it increased its share at New York's La Guardia. Its average market-share in 1983 was 2.9 percent. Air Florida emphasised international operations to South America and on the North Atlantic route to Europe. That explains their weak domestic presence. One can speculate if emphasis on international routes is impossible without a strong domestic system in order to provide enough feed. If Pan Am is taken as an example, that seems to be the case.

Table A.8 Air Florida's Market-Share at 50 Top Airports

Airport City	*79*	*80*	*81*	*82*	*83*	*84*
Chicago Midway	0	0	0	0	1.1	2.3
Ft. Lauderdale	0.6	3.4	5.6	5.5	5.4	0.9
Houston Hobby	0	2.3	1.2	0	0	0
Miami	1.3	6.5	9.3	9.6	7.2	1.8
New York JFK	0.3	1.1	0.9	0.03	0	0
New York LG	0	0	1.6	1.8	1.4	0.3
Orlando	0.2	1.3	2.1	1.8	1.0	0.4
Tampa	0	5.2	7.6	6.5	2.9	0.4
Washington National	0.2	1.4	2.3	1.9	1.6	0.5
Total markets	5	7	8	7	7	7

Source: Julius Maldutis, 1991.

Appendix-B European New-entrant Airlines

B.1 British New-entrants

B.1.1 British Midland

Although British Midland (BM) has been operating for a long period it is classified as a new-entrant as it began international operations by entering the London - Amsterdam route in June, 1986. The operations were made possible due to the liberalisation of the UK - Netherlands bilateral. An other development enabling BM to operate on international routes, at all, were due to the Government's White paper in 1985 that gave a concession to the carrier before restrictions were imposed on operations from Heathrow. The carrier became, therefore, the UK's chosen instrument to compete with the only British carrier to operate on international routes from Heathrow, British Airways.[1]

From 1988 SAS has been an equity holder taking on initially 24.9 percent stake and then increasing it to 40 percent in 1994. The carrier has enjoyed excellent traffic growth in the nineties, growing from 399 million RPK's to 3,365 million in 1993. The carrier mounted substantial losses in 1990/1991 fiscal. With SAS increased equity stake and other measures the carrier returned to profitability from 1992. British Midland has confronted BA on a number of issues and competition on routes. In September 1981 the carrier expressed interest in a number of routes abandoned by BA. Furthermore, the carrier has repeatedly undercut BA on a number of routes, for example. British Midland has the second largest pool of slots at Heathrow after BA. That fact on its own can explain the carrier's longevity next to BA, but fares out of Heathrow tend to carry a premium compared to other airports due to the congestion and its popularity as London's number one airport.

B.1.2 Air UK

Air UK was formed in 1980 by a merger of four small UK airlines. The airline centred its operations at Stansted when the airport was designated the London's third airport in 1988. It started to operate BAe146's for scheduled operations and Boeing 737-200s for charter work in that year on top of its two BAC1-11s. In 1985 the carrier operated to four points in Scandinavia, four on mainland Europe, to Guernsey and Jersey and eleven points in the UK, including Belfast, from London Stansted and Heathrow. Strong links with KLM have been characteristic for the airline since formation with the Dutch carrier holding 14.9 percent equity.[2] Air UK was profitable from 1987 until 1990 but losses accrued from 1991 until 1993.

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1 The Times, 20/6/85, p.3.

2 Air Transport World. 'Regional international services are Air UK's specialty', September 1985. pp. 83-86. and Air Transport World, 'Air UK sees strong growth this year', June 1988, pp. 184-185.

B.1.3 Dan Air

Dan Air was initially set up as a charter carrier but limited scheduled services from 1960's. However, it launched a major expansion of scheduled operations after the demise of Air Europe, taking over many of its routes. The carrier was not directly linked to a tour operator but tended to provide extra capacity to tour operators that had filled their own aircraft. This made the carrier vulnerable as the slump in package holidays occurred in the summer of 1990. At the same time schedule operations dropped dramatically due to the Gulf crisis. The carrier hired a 'company rescuer' David James in 1990 in an effort to save the company. David James is quoted in Airline Business in June 1991, saying that 'Everything in the financial structure was short-termist and instant. It was all reactive to current events. It was not an organised deeply-planned financial strategy.'[3] Cost cutting by Air Europe along with the previously mentioned factors, led to the company's cash-flow difficulties. With close cash-flow management and 'treasury control system' installed the company extended its life for some months but eventually was acquired for £1 by BA in late 1992.

B.1.4 Air Europe

Air Europe was formed in 1978 as a charter carrier. In 1985 it moved into scheduled operations serving Gatwick - Palma. Air Europe took the advantage of the British Caledonian demise in 1987 by expanding rapidly its scheduled services from Gatwick. In addition the company set out to establish a network of airline franchises. The first such company was established in Spain, Air Europa, of which ILG had a 25 percent share. In 1989 the company bought 49 percent of Nurenburger Flugdienst, that became Air Europe of Germany. In 1988 the Group bought into Air Norway that became Air Europe Scandinavia operating on routes to Oslo, Stockholm and Copenhagen from Gatwick. Air Europe Italy was a start-up that began operations with two B757's in 1990.[4] This network of airlines gave Air Europe foothold in international domestic markets before any serious liberalisation occurred in Europe. Such strategy could have become highly advantageous for Air Europe after the passage of the Third Package and specifically after 1998.

The company benefited from the low cost-structure of the charter base and from the interlinkages between the two. In a short period of time the airline became a major player in European air transport cited as an example of the viability of competition with the incumbents. Harry Goodman the chairman of International Leisure Group the parent of the airline, initiated a management buyout in 1987 in order to expand the carrier faster. His ambitions were financed by the Lloyds Bank and the Swiss investor Werner Ray that provided conditional share holding. The condition was that he would be bought out in the Spring of 1990. That requirement alone required the company to 'float' on the stock-exchange, which it could not at the time due to the poor market conditions.[5] As a result, this situation seriously undermined the carrier's financial options and stepped up the financial pressures. The carrier underestimated,

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3 Airline Business, 'Under Doctor's Orders', June 1991, p. 56.
4 The Avmark Aviation Economist, 'Airline expansion on an IT base', February/March, 1990, p.p 15 - 21.
5 Airline Business, 'Too Close To The Sun', May 1991, pp. 24-26.

also, the marketing costs of operating new scheduled services in countries where Air Europe was unknown.

A scenario followed were the carrier could not adjust to cash-flow problems through short-term bridging with capital or loans. As Ray had to keep his interest against his plans it escalated financial problems of his holding company Omni Holdings. The holding company collapsed in March 1990 and with it the only apparent source of capital that could have kept ILG going, but at the time $35 million was desperately needed. The reason for the collapse were cited as the recession and the Gulf war. These occurrences did in fact escalate the problems but in no means were they the cause. The fast growth of the airline stimulated by Harry Goodman as executive-chairman were the actual causes. At year end 1989 ILG had cash of only £55.8 million, long-term debt of £215.8 million and current liabilities of £198.7 million. Of the short-term debt £131.5 million was aircraft financing, while £33.2 million were loans due to the management buyout. In this situation ILG paid £27 million in interest that was mostly on aircraft finance.[6]

Furthermore, even though Air Europe was profitable which it claimed to be the cash situation was poor. In addition it was closely integrated with the tour operating business in such a way that if either collapsed both would have to fold.[7] As a result, of the recession and the Gulf crisis the cash-flow situation was seriously severed leading to the collapse of ILG after a potential investor, as a last resource, withdrew in early 1991.

B.1.5 Virgin Atlantic Airways

Virgin Atlantic Airways started operation in June 1984 with one Boeing 747-100 on the route from Gatwick to New York's Newark airport. In 1989 the airline was operating flights to New York, Miami, Orlando(chartered), Maastricht and Tokyo, with four Boeing 747's. The Tokyo flight commenced in May 1989. In 1992 the carrier had abandoned the short-haul route to Maastricht but added Orlando as scheduled destination, Los Angeles and Boston.

The carrier has enjoyed considerable profitability if the first 26 months are excluded during which the carrier lost $6.4 million.[8] In 1992 the carrier lost £14.5 million allegedly due to the introduction of the 'mid-class' and from writing off a cost of a Heathrow lounge. Following a 'victory' out of court settlement over the 'dirty tricks' campaign and the sell off of Virgin Records $980 million to Thorn-EMI the carrier gained higher ranking in the financial community. As a result of this developments and the necessity to add aircraft for planned expansion the carrier is retiring its seven ageing 747-200's and one 747-100. The fleet is now composed of four A340's and two 747-400's. With two more 747's on order.[9] The carrier abandoned its intra-European routes that were run under a licence to use the Virgin name, in 1989 due to lack of loads. In 1993 Virgin took up a similar concept by franchising the Virgin name to a small Greek carrier South East European Airlines

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6 Ibid (Airline Business 5/91), p. 25.
7 Aircraft were, for example, utilised jointly by both companies.
8 Air Transport World, June 1990, pp. 19-20.
9 Ibid (ATW, 6/90), p. 188.

operating a route between London and Athens and London's CityJet that operates BAe146 between London City Airport and Dublin.

Virgin's image is aimed at the younger middle-manager by adding an element of 'fun' to air travel. The early strategy involved giving free travel to performers that would perform on board. Although such happenings do not occur today the carrier still retains the image by introducing alternative product features like manicure on board for 'Upper Class' passengers, selection of videos to watch from small recorders, on-board video games, on-board gambling and so forth. Branson's own image is that of an adventurer having established himself as a leading balloonist and speed boat enthusiast after attempting for the speed record across the Atlantic and a balloon crossing. This free promotion and the name of the airline itself has created a strong brand that implies relaxed, non-political, humanistic and fun type of atmosphere. This is something that gathers very well to many 'baby-boomers'. An other important part of the airline's strategy was to turn early towards the business traveller in order to build high-yield traffic instead of aiming only for the back-packers.

The most important feature of the airline's strategy is the airline's ability to turn-up a superior product that has lead to several awards as the *Best Airline of The Year* along with several other important awards. This more than anything else brings the Virgin product into the limelight and attention of the business community creating a strong loyalty. One limiting factor is the carrier's small route structure that makes it impossible for most to use the airline solely, like business men can do in the case of BA on most international routes. However, the carrier's strength lies precisely in that fact by being able to enter only high density long-haul routes and provide superiour adaptive service like only a small carrier can provide.

B.1.6 Business Air

Business Air is a Scottish airline that operates flights from London's City Airport to Frankfurt and has enjoyed considerable traffic growth. Business Air was founded in 1987 and started scheduled operations 1988 between Aberdeen and Esbjerg in Denmark. It gained from a package set up by BA in order to help independent carriers establish domestic services as one of the requirements to take over BCal.[10] Lufthansa took a 38 percent stake in 1994, but the two airlines had entered marketing pact in 1993 when Business Air started flights from London City Airport to Frankfurt with a BAe 146s. Moreover, the carrier feeds Lufthansa's Manchester flights. Swissair holds also a 38 percent stake in Business Air.

B.2 German New-entrants

There have been number of notable new-entrants in Germany, namely: German Wings, Aero Lloyd and ContiFlug. The former two were the first licensed independents in Germany and both stopped operations soon after inauguration. Their problems were claimed to be airport congestion, lesser market growth than anticipated and head on competition with Lufthansa.

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10 Commuter Air International, September 1992, p. 13.

B.2.1 Aero Lloyd

Aero Lloyd was a charter-based new-entrant that started point to point scheduled operations on the Frankfurt-Hamburg, Frankfurt-Munich and Hamburg-Munich markets. These markets are Lufthansa's busiest domestic routes with 1.77m, 1.83m and 0.77m seats offered in 1989, respectively. As the carrier faced disappointing results in the domestic market it started to look at the long-haul market and ordered two MD-11's with an option for two more. Long-haul routes applied for were to Tokyo, Bangkok, Hong Kong, Singapore, New York, Los Angeles and Las Vegas. In addition to these routes, the carrier launched in 1989 service on the Frankfurt-Paris and Munich-London/Gatwick routes. Lufthansa's strategy against the carrier was to increase frequency on the domestic routes but not retaliation was encountered on the international routes. Initially the carrier set its fares 15 percent lower than Lufthansa by application, but had to follow fare increases by the flag carrier. In Frankfurt the carrier got a poor location leading to extended walking for its passengers, a fact that made it hard for many passengers to justify its use for not lesser fare. This situation was rectified later. The carrier did not join Lufthansa's CRS partner, Amadeus, as it was quoted an unacceptable high booking rate, leading to a negotiation with Galileo in 1990, that led to Amadeus dropping its rate in order to shun off Galileo's entry into German travel agencies.[11]

B.2.2 German Wings

German Wings started-up from scratch providing premium service at economy class fares. Lufthansa responded to both of the new-entrants by refusing to interline, a decision that was reversed by a German Court. After Lufthansa accepted interlining with the carriers it required endorsement by an individual airline leading to connection-time problems for its passengers. Still the Court found that Lufthansa was infringing competition regulation due to its market power. In the meantime German Wings had to change its whole route strategy due to lack of interlining. Following the ruling the carrier started to concentrate on longer-haul markets in order to make greater impact in the market with its premium service. This led to a focus on Munich - Dusseldorf, Cologne and Hamburg but it lessened the frequency on the Munich - Frankfurt and Frankfurt - Hamburg routes. The carrier served one international destination to Paris CDG from Cologne and Dusseldorf.

German Wings operated six MD-83's in the first year of operations targeting a fleet of 12 aircraft at the end of the second year.

The Transport Ministry of Germany issued a constraint on the operations of new airlines by allowing initially only Category I operations, although, the aircraft and crew were certified for CAT III. This caused the carrier unnecessary delays during the winter-months.

It is interesting to observe that both carriers entered the most lucrative domestic routes without success. Leading them to seek longer-haul routes as a more viable route strategy. It is certain that the competition strategy by Lufthansa was anti-

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11 Airline Business, Independent Lessons, April 1990, pp. 50-55.

competitive and undermined the effort of these two German carriers seriously, although, it is not possible to quantify that negative impact.

B.2.3 ContiFlug

ContiFlug had operated as an air taxi and charter operator since the sixties, before launching scheduled operations in October 1992 between Berlin Tempelhof airport and London City Airport with a BAe 146-200. An other identical jet was used for charter operations. The carrier reported that it had achieved 17 percent market-share between London and Berlin and exceeding its break-even load-factor with 62 percent load in April 1993. The London service was offered twice daily. In the summer of 1993 the carrier entered the Tempelhof - Venice route claiming to have sold 5000 of the 7000 seats offered in advance.[12] In 1993 the carrier entered a route from Tempelhof to Riga but had to abandon the route due to poor loads. The carrier also lost a major ferry contract with Deutsche Aerospace in 1994.[13] In August 1994 the airline folded as a rescue package could not be organised in time for the receivers deadline.

B.3 French New-entrants

B.3.1 TAT

Air France acquired a 35 percent stake in TAT in July 1989, but was required to divest its stake due to acquisition of UTA and Air Inter in 1990. In addition Air France had to give up its monopoly on 50 international routes and 8 domestic routes, from which TAT gained. TAT operated principally on domestic routes until the Air France divestiture when the carrier entered international routes to London, Milan, Stockholm, Munich, Frankfurt and Copenhagen. The company operates a number of peripheral companies in maintenance, freight and aviation training.

British Airways acquired 49.9 percent stake in the carrier and plans to take up the remainder in 1997 when capotage will be allowed. In 1994 TAT's market-share in the French domestic market was less than 7 percent, while Air Inter dominated with 70 percent. It is clear that TAT does not operate anymore as an independent carrier as it is part of BA's strategy whose aim is to secure domestic feed to its international route system from major European capitals. The final brick in such strategy is the Commission's re-negotiation of all bilaterals with the EU considered as one entity. Such bilateral approach along the liberalised precedent of the US - Netherlands bilateral would enable any European carrier operating international routes to any international destination who is a party to such an agreement.

B.3.2 AOM

AOM was created by the merger of Air Outre Mer and Minerve. The carrier operates Douglas MD83's in competition with Air Inter on the Marseilles - Paris Orly route and long-haul routes to Tahiti in competition with Air France and the French

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12 Travel-Trade-Gazette-Europa, April 22, 1993, p. 5.
13 Flight International, 31 August - 6 September, 1994, p. 11.

charter airline Corsair. In 1992 it halted its Paris - Barcelona route due to weak traffic.

B.4 Other European New-entrant Airlines

B.4.1 Ryanair

Ryanair has had an important impact on the London route from Ireland, in terms of lower fares, as assessed in this chapter. Its strategy is to provide low-fare, no-frills service. Ryanair was formed in 1985 by the sons of Dr. Tony Ryan the ex-Chairman of GPA leasing, whose interests are none in Ryanair.

To begin with (about six months) the carrier had limitations as to the size of aircraft it could operate, but it had to be less than 50 seats. After the limitation was eliminated the carrier acquired 105 seat Rombac jets (Romanian BAC1-11s). This and Aer Lingus step-up of frequency led to 40 percent frequency increase on the Dublin - London route. In 1994 the carrier was operating six Boeing 737-200s and two BAC1-11s.

In 1989 the Irish government issued a two airline policy, whose duration was until 1992. In the policy it was stipulated that: (i) that the two carriers could not compete on new routes developed during the policies duration; (ii) only Ryanair could operate on routes between Ireland and Stansted; (iii) sole rights were awarded to Ryanair between Dublin and Munich, but Aer Lingus had consecutive rights to Paris and Manchester; and (iv) only Ryanair was able to develop services between Irish regional airports and mainland Europe.[14]

Ryanair became profitable in 1991 and 1992. Ryanair was not profitable until it halved its routes and increased frequency on the remainder, withdrew from the unprofitable Stansted service and returned its ATR 42's turboprops to the lessor.[15]

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14 The Awmark Aviation Economist, 'Refuting the 'nowhere to nowhere' jibe', October 1989, pp. 16-20.
15 Air Transport World, June 1993, p. 110.

Appendix-C Causes of Corporate Decline

Table C.1 Causes of Corporate Decline: Literature Review

David Clutterbuck and Sue Kernaghan[16]	*John Argenti*[17]	*Stuart Slatter*[18]	*Ross Norgard*[19]	*Gary Goldstick*[20]	*Robert D. Boyle and Harsha B. Desai*[21]	*Martin van Mesdag*[22]	*Gerald P. Buccino*[23]	*Dorman Wood*[24]	*John McQueen*[25]	*Marty Gruhn*[26]	*Arnold Goldstein*[27]
Poor financial information (40)	One-man rule	Lack of financial control	A dominant executive	Lack of planning to deal with the increase in the cost of debt	Inadequately managed cash and capital requirements	Ignorance of the wants, needs and expectancy of stakeholders	Excessive debt (29.4%)	Lack of business records	Undercapitalisation (54)	Getting too big for your britches	Over-leverage
Lack of control in general (34)	Non-participating board	Inadequate manage-ment	Inadequate management depth	Change in the marketplace	Failure to analyse financial statements carefully	Insufficient awareness of competitive activity	Inadequate leadership (19.8%)	Lack of expei-ence	Poor operations manage-ment (29)	The exodus	Over-expansion
Insufficient working capital (33)	Unbal-anced top team	Price and product competition	An unbal-anced admini-strative team	Technology advances	Improper manage-ment of accounts receivable	Late reaction to variance in performance from what was expected	Insufficient manage-ment experience (12.9%)	Insuffici-ent stock turnover	Poor manage-ment accounting (26)	Arrogance	Overdivers-ification
Manage-ment inexperience (33)	Weak finance function	High cost structure	An uninvolved board	Changes in the physical environment	Underutilization of assets	Costing not able to show the fixed cost contribution provided by incremental sales	Improper planning (12.9%)	Excess-ive accounts receiv-able	Short term liquidity (26)	Playing follow the leader	Over-emphasis on sales
Lack of strategy (30)	Lack of management depth	Changes in market demand	A weak finance function	Disruption of key reltionships	Declining margins of profit	Poorly prepared market entry	Failure to change (9.8%)	Inventory shrinkage	Poor chief executive officer (23)	Fat marketing organi-sations	Inadequate control systems
Poor understanding of the market (29)	Combined chairman, chief-executive	Adverse movements in commodity markets		Over-expansion	Large increase in debt	Failure to make cash-flow forecasts with sufficiently short interval of time	Lack of volume (4.8%)	Poor inventory control	High gearing (23)		Overdependence on one customer
Insufficient margins (27)		Lack of marketing effort		Over diversifi-cation	Main-taining inventories that are too large		Poor asset management (3.3%)	Inade-quate financing	Poor state of the local economy (16)		Poor location
Reliance on one product/customer (27)		Big projects		Overdependance on a single customer	Spending excessively as earnings begin to rise		Overexpansion (3.0%)	Improper markup	Poor marketing/sales management (16)		Improper pricing with regard to cost structure
Obsolete or easily overtaken technology (26)		Acqui-sitions		Inadequate control systems			Inadequate accounting systems (2.9%)	Lack of sales	Theft and dishonesty (11)		Governement restraints
Excessive overhead costs (24)		Financial policy		Dissension in the management team			Inadequate controls (1 8%)		Bad debts (11)		Poor planning
Poor quality control (23)		Overtrading		The "Peter Principle" as it applies to business growth			Overdependance on one customer (.2%)		Increased competition (8)		
Too much short-term debt (20)		Organi-sational structure		Inadequate leadership of the chief executive			Poor pricing (.2%)		Other personnel reasons (8)		
Change in demand 20)									Loss of vital personnel (6)		
Failure to adapt to new market circum-stances (18)									Obsolete product (6)		
Too narrow or too wide product line (17)									Other management reasons (6)		
Competitor's actions (17)									Poor quality product (5)		
Lack of credit control (15)									Poor facilities and machinery (4)		
Faulty pricing strategies (Too high or too low) (14)											
Poor implementation of strategy (14)											
Increase in material costs (13)											
Wrong choice of strategy (12)											

16 David Clutterbuck and Sue Kernaghan, The Phoenix Factor: Lessons for Success from Management Failure, Weidenfield & Nicolson, 1990.
17 John Argenti, Corporate Collapse: The Causes and Symptoms, McGraw-Hill, 1976.
18 Stuart Slatter, Corporate Recovery: A Guide to Turnaround Management, Penguinn Business, 1984.
19 Ross Norgard, Chartered Accountant (Australia),
20 Gary Goldstick, Business-RX: How to Get in the Black and Stay There,
21 Robert Boyle and Harsha Desai, Basic Financial Strategies for Business Turnarounds, Management Review, Vol. 79, Sep 1990, pp29-32.
22 Martin van Mesdag, Knowledge, its Architecture and Management, MIP, VOL. 6, Issue 4, 1988, pp17-20.
23 Gerald P. Buccino, No More "Business as Usual" - The Leadership Opportunity in Troubled Times, Retail Control, May/June 1991, pp15-20.
24 Dorman Wood, Why new businesses fail and how to avoid disaster, Corporate Cashflow, August 1989, pp26-27.
25 John McQueen, The causes and lessons of business failure, Credit Management, October 1989, pp24-25.
26 Marty Gruhn, Why high-tech companies fail from their own success, Computerworld, July 16, 1990, p 25.
27 Arnold Goldstein, Top Management Digest,

Appendix-D New-entrants' Equity and Debt Structure

Table D-1 New-entrants' Equity and Debt Structure

L.-t. debt *Tot. stock. eq*	*'80*	*'81*	*'82*	*'83*	*'84*	*'85*	*'86*	*'87*	*'88*	*'89*	*'90*	*'91*	*'92*	*Last oper. year*
America W.				16.6 22.9	90.7 32.5	128.5 70.4	256.8 65.9	321.3 77.3	390.3 71.1	485.7 107.4	639.7 42.8	800.8 -144.5		800.8 -144.5
Southwest	77.9 107.0	58.9 176.5	106.3 240.6	157.5 313.9	152.1 360.4	297.4 462.9	259.2 508.3	249.9 523.8	368.3 577.1	352.9 649.0	325.7 608.4	615.8 631.7	699.1 854.3	699.1 854.3
People Expr.		56.0 15.9	59.8 49.0	246.6 101.9	325.5 190.9	502.2 210.9	502.4 289.2							502.4 289.2
Republic	649.7 117.6	720.5 72.3	796.5 55.9	805.3 5.6	740.2 36.6	651.1 196.1	412.6 369.1							412.6 369.1
New York A.		41.1 21.8	41.1 16.3	39.0 41.6	73.4 34.8	74.5 33.1	337.1 95.7							337.1 95.7
PSA	140.0 100.4	266.5 197.4	411.9 248.5	432.3 286.6	353.7 282.0	339.2 272.4	241.4 166.7	227.4 345.0						227.4 345.0
Braniff II					3.0 41.9	6.0 57.2	8.6 48.5	10.6 38.4	33.1 12.1	188.0 - 131.9				188.0 -131.9
World	369.7 89.4	342.5 68.5	286.9 14.9	239.5 -14.5	215.6 22.6	198.5 7.9	125.8 -24.5							125.8 -24.5
Air Wiscons.				49.2 46.5	47.5 50.9	75.3 60.6	66.0 65.4	75.2 71.5	60.4 89.3	63.3 89.7	91.0 91.0	124.8 59.3		124.8 59.3
Midway	13.9 9.0	32.9 22.8	53.4 39.8	50.0 46.3	42.0 24.6	35.4 45.0	29.8 55.8	37.8 57.3	73.3 83.2	142.5 116.2	111.3 -25.7			111.3 -25.7
Muse Air		0 31.9	77.4 45.0	83.6 66.4	120.7 49.3	74.3 61.6								74.3 61.6
Jet America			11.2 -0.1	10.5 0.8	69.4 14.8	66.0 6.3	53.6 2.6							53.6 2.6
Tower					0 -0.8	42.9 -1.7	45.0 0	45.0 -2.9	51.4 2.6	43.4 4.6	44.8 9.8	60.6 16.5	53.6 17.6	53.6 17.6
Air Atlanta					30.8 -16.3	44.7 -32.3	51.9 -42.2							51.9 -42.2
Air California	34.5 21.9	75.8 62.2	88.4 38.2	89.6 41.6	78.3 53.1	43.3 75.4	43.4 78.7							43.4 78.7
Air Florida	175.4 29.1	265.9 53.1	119.1 -32.0	33.2 -53.8										33.2 -53.8
Empire		3.9 8.5	26.8 8.8	24.6 17.4	32.6 19.4	30.3 14.7								30.3 14.7
Presidential							22.1 25.1	4.5 7.1	9.0 -36.6	28.9 -49.7				28.9 -49.7
MGM Grand								15.3 18.6	34.8 13.2	38.0 16.7	59.8 17.2	200.3 75.9	27.5 61.2	27.5 61.2
Florida Exp.					0 -2.2	1.3 14.4	23.0 24.6	23.0 12.4						23.0 12.4
Arrow Airw.					13.2 -16.3	13.7 -17.2	16.3 -20.8							16.3 -20.8
Aspen						1.8 1.6	3.0 0.7	1.7 2.0	2.7 -0.1	3.3 -6.2	7.5 -2.6			7.5 -2.6
Capitol Air	9.4 -2.9	26.4 -0.9	11.0 -22.1	10.2 -33.5	5.8 -35.0									5.8 -35.0
Horizon Air						3.8 -11.3	9.8 -14.6	6.4 -0.8	15.0 3.5	26.7 5.3	13.8 6.4	4.5 10.0	4.1 13.2	4.1 13.2
Sunworld					1.1 2.3	0.9 13.5	0.4 8.4	1.1 -5.7						1.1 -5.7
Midwest Exp						10.1 5.8	11.8 5.5	10.3 8.7	39.5 12.5	35.4 17.3	26.3 20.3	0.8 20.4	0.3 22.4	0.3 22.4

Source: DoT Form 41

Appendix-E Analysis of the Questionnaire Means: Part I

Table E.1 Means for Questionnaire Part I: The Dichotmous Distress Variable

	M	L	NL
Organisation			
We have customer-oriented front line people	4,36	4,42	4,29
Our internal social and political system support our business aims	3,50	3,33	3,70
The board of directors is highly involved in the airline's affairs	3,89	4,08	3,67
Our organisational structure is decentralised	2,78	3,08	2,42
We would create the same organisation structure as we have now, if given the opportunity	3,38	3,42	3,33
Management			
Our airline is flexible enough to respond immediately to major opportunities	4,62	4,50	4,76
We usually receive many useful suggestions from our employees	3,71	3,67	3,76
Our long term aims and objectives guide our business decisions	3,78	3,75	3,81
The airline has a vision of the future shared by all the employees	3,53	3,29	3,81
We surround ourselves with staff who promotes different orientations of view	3,80	3,83	3,77
Our staff provide us with a competitive advantage	4,18	4,08	4,28
The atmosphere among employees is very good	3,87	3,75	4,00
Our staff is encouraged to have open discussion about the airline's problems	4,16	4,17	4,14
We do detailed analysis before taking any major decision	3,89	3,83	3,95
Everyone in our airline understands our long term aims and objectives	3,16	2,79	3,57*
We are good at changing our staff's beliefs and values	3,13	3,08	3,19
We have incentives for our staff that encourages extra commitment	3,09	3,17	3,00
Employees are rewarded for taking actions that benefit our customers	3,24	3,46	3,00
Group consensus is the usual way we make decision	3,29	3,63	2,90Ψ
The number of serious problems we are faced with increases constantly	3,02	3,22	2,81
Finance			
We are more efficient than most of our competitiors	4,31	4,17	4,48
Our financial control system is efficient	3,96	3,96	3,95
We make effective cash-flow forecasts	4,29	4,33	4,24
We are effective in monitoring important cost areas	4,16	4,12	4,19
Lack of capital will not limit our growth	2,60	2,08	3,19**
Marketing			
Our customer loyalty is strong	4,07	3,88	4,29
We fulfil our customers' needs well	4,42	4,29	4,57Ψ
We act immediately upon customer complaints	4,00	3,92	4,09
Our marketing performance is good	3,93	3,88	4,00
Our marketing is aggressive	3,80	3,79	3,81
We are pleased with the performance of our distribution outlets	3,55	3,63	3,45
We are innovators in customer service compared to our competitors	3,91	3,57	4,29*
We grow by selling our services to more customers	4,38	4,38	4,38
Our service has a range of features that makes it distinctive	4,11	3,92	4,33
Quality is our major competitive advantage	3,82	3,79	3,85
We are effective in monitoring our customers' expectation of quality	3,77	3,73	3,81
We are good at stimulating demand for our services	4,14	4,04	4,23
We make changes in our service quite frequently	3,02	3,26	2,76
We plan and allocate sufficient resources to developing new markets	3,33	3,00	3,71Ψ
Everyone in our airline understands how they can improve quality	3,40	3,46	3,33
Strategy			
We are constantly identifying threats and opportunities to our business	3,84	4,17	4,24
We emphasise planning for the future	3,56	3,63	3,48
We usually have enough resources to plan for the future	3,02	2,79	3,29
Our long term aims and objectives are easily achievable	2,66	2,48	2,86
We try to avoid head to head competition with our larger competitiors	3,42	3,42	3,43
The improvement of the airline's market-share is our number one priority	3,05	3,04	3,04
We allocate major resources for diversification into other industries	1,39	1,63	1,10
Environment			
Long-term prospects in our primary markets are excellent	3,93	3,75	4,14
We are rarely taken by surprise by our business environment	3,25	3,25	3,25
The airline's success is largely dependent on factors out of its control	2,44	2,83	2,00*
Information			
We are constantly upgrading and improving our information system	3,84	3,79	3,90
Important information is communicated to employees to enable effective decision-making	3,82	3,92	3,71
We have all the information we need on our customers, markets and opportunities	2,69	2,79	2,57
Our information system provides us with a clear competitive advantage	2,60	2,58	2,62
Our information systems provide quick, accurate and relevant information	3,36	3,34	3,38

Note that: 1 = disagree strongly, 5 = agree strongly. (n = 45: L, n = 24; NL, n = 21)

Appendix-F Analysis of the Questionnaire Means: Part II.

Table F.1 Factor Means for Questionnaire Part II: Past, Present and Future

Factor	*Past (mean)*	*Present (mean)*	*Future (mean)*
Financial Factors			
Cost control	7,36	8,79***	9,28*
Fuel costs	6,69	7,53**	8,03**
Cost reduction	6,64	8,58***	8,88
Increase margins	6,73	7,82**	8,42**
Turnover growth	5,43	5,73	5,73
Off-balance sheet financing of aircraft	5,65	6,21	6,50
Achieving critical mass	5,50	5,34	5,72
Long-term rather than short term ..	5,48	5,63	6,70**
Debt reduction	5,35	7,35***	7,61
Reduction of labour costs	5,52	7,33***	7,21
Marketing Factors			
Service quality	7,33	8,12*	8,85***
Passenger load-factors	6,69	7,39**	7,82*
Expansion into new markets	6,82	7,06	7,79**
Price leadership in served markets	6,33	6,91*	6,97
Brand image	6,52	7,55*	8,27***
Promotion	6,15	6,64	7,09
Media advertising	6,15	6,45	7,15**
Business passengers	5,94	7,00**	7,33
Market-research	5,12	6,67***	7,45**
Distribution network	5,55	7,06***	7,74***
Avoidance of price wars	5,63	6,36*	6,48
Market-share	4,94	5,55	6,06**
Weight load factor	4,57	4,75	4,82
Commission overrides	4,48	5,75***	5,97
Frequent flyer program	3,42	5,45***	6,33***
Alliance with the incumbents	3,03	4,35***	5,35**
Merger/acquisition to gain market-share	2,71	3,29	3,90*
Diversification into other industries	1,71	1,29	1,68*
Inform. and Communication Factors			
Computer reservation system	5,63	7,21***	8,00***
Inter-departmental communication	5,64	6,45*	7,54***
Market-intelligent information system	5,22	6,25***	7,48***
Contol systems	5,19	6,84***	8,19***
Planning systems	5,09	6,54***	7,94***
Motivation systems	5,03	5,97***	7,33***
Logistics systems	5,00	6,09***	7,34***
Yield management systems	4,36	6,94***	8,09***
Simplification of information system	4,63	6,06***	7,09***

Factor	*Past (mean)*	*Present (mean)*	*Future (mean)*
Management and Organisation Factors			
Employees' productivity	7,33	8,36***	8,94***
Employee relations	6,91	7,33	8,28***
Operations without unionised....	7,29	7,23	7,22
Flexible job descriptions	6,67	7,15**	7,54*
Company culture	6,67	7,39	8,24***
Business strategy	6,15	7,15***	7,72***
Managements' external contacts	5,94	6,90**	7,52**
Shared company vision	6,15	6,94**	8,03***
Company mission	5,94	6,91*	7,58***
Management teams	5,38	6,22***	7,09***
Delegation	5,34	6,53***	7,69***
Employees' autonomy to take decisions	5,47	6,50***	7,40***
Managers' incentive programs	4,63	5,12	6,30**
Employees' incentive programs	4,64	5,06	6,24***
Job rotation	3,89	4,38	4,75*
Union relations	3,63	4,50**	5,16**
Staff reduction	4,27	6,06***	5,67
Decentralised organisation structure	4,38	5,06*	5,90***
Operations Factors			
Aircraft utilisation	7,68	8,25*	8,88***
Matching aircraft size with ...	6,25	7,34***	8,06***
Homogeneous aircraft fleet	6,30	7,12	7,42
Frequency in served markets	5,61	7,18***	7,81***
Acquisition of airport slots	5,64	6,06	6,54
Acquisition of new aircraft	6,79	7,18	7,24
Quality of terminal space	5,85	6,94***	7,54***
Interlining agreements	4,85	5,85***	6,63***
Operation on trunk routes	4,97	5,70*	5,83
Hub and spoke operations	3,15	4,21***	4,63
Long-haul routes	3,48	3,33	3,94*
Freight operations	2,94	4,30***	5,13**
Feeder airline agreements	2,75	4,63***	5,64***
Code sharing	2,06	3,91***	4,97***
Environment Factors			
Investors' attitudes towards the airline	5,56	7,18**	7,72*
Favourable attitude of travel agents	6,14	7,48***	8,30***
Competitor analysis	5,00	6,75***	7,91***
Reduction of CRS bias affecting the airline	5,45	6,09	7,13**
Forecasting adverse effects of the environment..	5,56	6,94***	7,28*
Influencing government policy	5,54	6,90**	7,18

Subjects were asked to rate the importance placed on each factor at their airline on a scale from 0 to 10.

Appendix-G New-entrant Airlines' Life-cycle Analysis

G.1 Introduction

The intention was to investigate the differences of failed and non-failed carriers at each life-cycle stage. Unfortunately it was not possible due to the small sample size. The different emphasis on factors according to the airlines' size is important nevertheless in order to understand the causes of failure and non-failure. To do the life-cycle analysis the size stages explained in Chapter 1 and the section on airline size distribution in this chapter, was used: New-entrant, Transitional and Interim Major.

Life-cycle analysis is important in order to investigate the null hypotheses that a particular factors importance would not change as the airline's size increased. If the alternative hypotheses was true and there was a difference it would be necessary to investigate wether those factors that differed where also the factors that distinguish between failed and non-failed airlines and loss-making and non-loss-making airlines, thus being 'critical' factors.

Unfortunately there was not optimal number of airlines in each group, making the results indicative.

G.2 Questionnaire Part I[28]

Statistically significant differences between new-entrants and transitionals from interim-majors is in terms of the former two making more frequent changes in their service. This is consistent with the believe that smaller organisations are more adaptive to changes in the environment than larger organisations. This very factor must be viewed as one of the competitive advantages of new-entrants and transitionals.

Transitionals differed from new-entrants in terms of three factors, namely decentralised decision making, allocation of resources into non-core business and emphasis on market-share. This indicates that decentralisation increases as the airline gets larger making more employees participate in decision making. Furthermore, with larger size the airline is more likely to expand into non-core businesses, although, the emphasis on this factor is overall very low. The third factor, market-share, indicates that airlines will emphasise market-share more as they get larger.

Interim-majors differed from new-entrants in terms of available market information and employee rewarding. Larger airlines do usually have both more staff and financial resources to gather market information, thus, it is not surprising that this factor is rated higher by respondents of large airlines than of new-entrants that are still installing or saving on information gathering systems and staff. As organisations grow larger they start to get de-personalised due to increased number of personal interaction possibilities. In order to counteract this the airlines install control and reward systems that will provide the employees with some kind of recognition for exceptional performance. Thus, it is expected for interim-majors to have such

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28 Please note that 'Agree strongly' was rated as 5 and conversely 'Disagree strongly' was rated as 1. The subjects were asked the following: 'Please indicate if you agree or disagree with the statements in relation to your airline (today)'.

systems installed, while the new-entrant has not usually the need to do so due to the motivational and rewarding aspects of close personal ties in a smaller organisation. In the smaller organisation, good performance, is much more likely to be detected by peers and managers, who will reward the employee in a non-formal way. As the management layers increase this becomes harder and formal reward systems have to be installed.

Table G.1 Significant Differences According to Life-cycle Stages

New-entrant (n = 12)	*Transitional (n = 20)*	*Interim-major (n = 12)*
We make changes in our service quite frequently	We make changes in our service quite frequently	■
■	Group concensus is the usual way we make decisions.	
■	We allocate major resources for diversification	
■	The improvement of the airline's market-share is our number one priority.	
■		We have all the information we need on our customers, markets and opportunities.
■		Employees are rewarded for taking actions that benefit our customers.

The mean of individual respondents was used rather than the mean of aggregated means of each individual airline. Analysis of Variance was used with Least Significant Difference test (LSD) test at the .05 significance level. The column containing the factor written out has the highest mean of the tree groups and is significantly different from the column(s) containing the ■ symbol.

G.3 Questionnaire Part II, Past

The main conclusion from Table G.2 is that respondents of new-entrant airlines, generally rate the importance placed on factors lower than that of respondents of the other two life-cycle stages listed. As a result, there is no specific factor enjoying more emphasis at new-entrants in comparison to the other two stages.

Transitionals, on the other hand, do differ from both new-entrants and interim majors in terms of: Avoidance of price wars and logistics systems. Airlines reaching the transitional group are gaining more presence in the market due to larger size, thus, attracting more attention from larger airlines that may view it as potentially harmful in the near future. As a result, transitionals' marketing moves may cause reaction of the incumbent out of proportion to the transitionals impact on the market. Furthermore, the cost advantage of the new-entrants' stage may have dissipated at the transitionals stage making substantial fare reductions less sustainable. In view of this it is perhaps not surprising that transitionals are more likely to avoid price wars. Larger airline size creates increased need for logistics systems in order to link together different parts of the organisation. A new-entrant is usually pretty much fixed to one city or few cities, while transitionals may have one main base and few large sub-bases and larger number of cities requiring own personnel. Once such system has been constructed during the transitional stage it will grow incrementally with the airline, without, requiring similar emphasis as during the transitional stage.

Respondents of interim majors differed from the two other stages in terms of: Company culture, frequency in served markets, delegation, flexible job descriptions, frequent flyer programs, service quality and expansion into new markets. At the interim-major stage the airline has penetrated the market in a geographical sub-

section thouroughly, causing a need for growth opportunities in other sub-sections that require greater analysis and risk-taking due to increased likelihood of other carriers' retaliation. Furthermore, as the airline gets larger it starts to move away from the niche concept into being a more 'ordinary' carrier, emphasising similar product features like seat-width, frequent flyer programs and food quality. At the interim-major stage the organisation has become very large with tens of thousands of employees causing the management to emphasise company culture, delegation and job flexibility in order to maintain high employee productivity.

Table G.2 Differences According to Life-cycle Stages, Part II Past

New-entrant (n = 7)	**Transitional** (n = 19)	**Interim-major** (n = 12)
Management Factors		
■	*Union relations*	*Union relations*
■	Delegation ■	Delegation
■	Company culture ■	Company culture
		Employee relations
■		Company mission
■		Employee incentive program
■	Business strategy	Business strategy
Information factors		
■	*Logistics systems*	■
■	Market-intelligent information- and communication system	Market-intelligent information- and communication system
■	Control systems	
■	Forecasting adverse effects of the economy on the airline	
■	Planning systems	
	■	Simplification of information- and communication system
■		Yield management system
Financial Factors		
■	*Cost control*	*Cost control*
■	Cost reduction	Cost reduction
■	Aircraft utilisation	Aircraft utilisation
■	Increase margins	Increase margins
■	Debt reduction	Debt reduction
■	Fuel costs	Fuel costs
■	■	Flexible job descriptions
■	Employees' productivity	Employees' productivity
Marketing Factors		
■	*Acquisition of airport slots*	
■	Favourable attitude of travel agents	
■	Quality of terminal space and ground facilities	Quality of terminal space and ground facilities
■	Expansion into new markets ■	Expansion into new markets
■	Avoidance of price-wars	■
■	■	Frequency in served markets
■		Investor's attitudes towards the airline
■	■	Frequent flyer programs
■		Business passengers
■	■	Service quality

Analysis of Variance was used with Least Significant Difference test (LSD) at the .05 significance level. The column containing the factor written out has the highest mean of the tree groups and is significantly different from the column(s) containing the ■ symbol.

This factors, if emphasised, can retain some of the positive aspects of smaller organisations like flexibility and 'family' athmosphere (belonging) and break the bureucratic tendencies of larger organisations. These management actions can also

be cost saving as delegation and job-flexibility reduces the personnel requirements by increasing productivity, carrying some of the cost advantages of earlier life-cycle stages to later stages.

The growth emphasis makes the airline want to grow in the least risky way by stimulating traffic on present routes, before expanding into new markets. Cost reduction only enters the picture as the airline has reached a size where cost inefficiencies and a scope for cost reduction occurs. Airlines at the new-entrants' stage are usually underpriviledged at larger airports, often subject to lower quality facilities at airports. As the airlines enter the transitional and interim-major stage the importance of offering comparable quality in all aspect of service gains increased importance due to less competitive advantage.[29] This also applies due to the transitionals wanting to step-up frequency at major airports requiring extensive lobbying on their behalf at the airport, aviation authorities and at political institutions. This causes increased presence in the market leading to forceful reactions of other airlines present in the market.

Interim-majors differ from transitionals in terms of importance placed on frequency in served markets and delegation. This is for the same reasons as stated before.

G.4 Questionnaire Part II, Present

As we move to the present we find that new-entrants differ from interim-majors in terms of emphasis on computer reservation systems. The reason may lie in the fact that smaller airlines are unfavoured in terms of biases (see Chapter x) and costs that are usually higher than that of larger airlines. Furthermore, some new-entrants are only listed and not full participants in the commercial CRS's. As the new-entrant grows, which is usually fast, the importance of participation increases.

Table G.3 Differences According to Life-cycle Stages, Part II Present

New-entrant (n = 6)	**Transitional** (n = 16)	**Interim-major** (n = 11)
Management		
■	*Union relations*	*Union relations*
■	Quality of terminal space and ground facilities	Quality of terminal space and ground facilities
Marketing		
■	Favourable attitude of travel agents	
■		Frequent flyer programs
	■	Delegation
	■	Frequency in served markets
Information		
	Logistics systems	■
Computer reservation system		■
■	Forecasting adverse effects of the economy on the airline	Forecasting adverse effects of the economy on the airline
Finance		
■	Cost reduction	Cost reduction
■		Increase margins
■		Debt reduction

Analysis of Variance was used with Least Significant Difference test (LSD) test at the .05 significance level. The column containing the factor written out has the highest mean of the tree groups and is significantly different from the column(s) containing the ■ symbol.

29 For more detailed explanations see the chapter on new-entrants' strategy.

Transitionals differ from interim majors only in terms of logistics systems for the same reason as stated before.

Transitionals and interim-majors differ from new-entrants in terms of emphasis on forecasting adverse effects of the economy on the airline, quality of terminal space and ground facilities, union relations and cost reduction. As the airline's size increases it becomes increasingly hard to fend off unions. Unions are, however, a fact of life for most if not all European airlines. Thus, making union relations increasingly important as the airline's size increases. Thus, it is logical that emphasis on this factor increases as the airline gets larger in order to keep the peace but maintain as low cost base as possible.

G.5 Questionnaire Part II, Future

The respondents were asked to project the importance placed on the factors into the future. Emphasis on the reduction of CRS bias at new-entrants and transitionals was significantly different from interim-majors. The emphasis still on CRS's while the importance placed on passenger load factors was significantly different from interim-majors. This may indicate that the new-entrants in the sample were not satisfied with load-factors, wanting to improve those. While new airlines are gaining recognition and entering new markets load factors are often low (see Table x.x. in Chapter X).

Respondents of transitionals do not differ from interim-majors for any factor. They do, however, differ from new-entrants in terms of commission overrides, cost reduction and union relations. The reasons for the importance on cost reduction and union relations has been explained before. The new factor that enters the picture here, commission overrides, can be explained in terms of increased emphasis on TA's distribution and the neccessity to match override offers by the competitors.

Table G.5 Differences According to Life-cycle Stages, Part II Future.

New-entrant (n = 13)	*Transitional (n = 17)*	*Interim-major (n = 12)*
Reduction of CRS bias affecting the airline	Reduction of CRS bias affecting the airline	■
Computer reservation system		■
Passenger load factors		■
■	Union relations	Union relations
■		Frequent flyer program
■	Commission overrides	
	■	Frequency in served markets
■	■	Homogeneous aircraft fleet
■	■	Delegation
	■	Employees' incentive program
■		Cost reduction

Analysis of Variance was used with Least Significant Difference test (LSD) test at the .05 significance level. The column containing the factor written out has the highest mean of the tree groups and is significantly different from the column(s) containing the ■ symbol.

Interim-majors differ from both transitionals and new-entrants by placing more importance on frequency in served markets and homogenous aircraft fleet. New-entrants have frequently grown very fast adding aircraft that may have been available

when needed but not compatible with existing fleet as growth decreases more effort may be placed on harmonising the fleet.

Interim-majors differ from transitionals only, in terms of delegation and employees' incentive program. As the organisation gets larger bureucratic tendencies increase, that is concentrated power and decreased responsiveness intuitivity. In order to counter this, organisations place increased importance on delegation and employee incentive programs.

Appendix-H The Difference Between European and U.S. Airline Management Practice

H.1 Introduction

The following section maps the difference between European and United States carriers for questionnaire I and questionnaire II. Specialists are included in the analysis for the latter questionnaire.

The importance of doing this analysis is to establish if European and United States carriers actually differ in terms of the items that distinguish between the carriers by performance.

H.2 Questionnaire Part I

According to the findings European respondents agree strongly on the average that the board of directors is highly involved in the airline's affairs. Their United States counterparts average slightly above the mid-point, which indicates less involvement of the board of directors in the airlines' affairs in the United States. The explanation of this difference must be sought in the way that the Board of Directors is composed between the two geographical areas. In Germany, for example, the board of directors has a supervisory board assembled of representatives of shareholders, employees and other stakeholders. This supervisory board then appoints the management board to deal with the detailed management of the company. Under the Insolvency Act the responsibility of British directors has been increased. For example, they may be personally held liable for company debts if they trade after the company is insolvent. This two examples imply that by tradition the board of directors is highly participatory in Germany and also in Great Britain due to changes in the insolvency act. In the United States on the other hand, there is a much more controversy over the role of the Board of Directors. This less effective role of the board is clearly reflected in the results. The trend has nevertheless been towards more board involvement in the United States. A statistical composition of boards of directors published by Heidrick and Struggles, Inc, shows that the trend is towards increased role in the governance of the corporations, more involvement of outsiders, more reliance on working committees chaired by outsiders and increased compensation that reflects more demands on directors. The criticism of the board of directors in many companies in the United States is that they are assembled with insiders primarily, attorney from the company's outside law firm, the president from the company's bank and few of the chief executive's personal friends.

The US respondents have stronger feelings, than their European counterparts, on their airlines providing incentives to employees that encourage extra commitment, although the average is not particularly high. The reason for the difference can be sought in the fact that the US carriers have participated in fierce competition for a decade, thus utilizing more efficiently the managment tools available than their heavily unionised less competitive European counterparts.

Respondents of US carriers agree that long-term prospects in their airlines' primary markets are excellent, more readily than those from Europe which may indicate that the foothold of the large incumbents is actually dissipating giving the smaller carriers openings in their markets. The protectionism and strong government involvement and lack of experience in full competitive environment may on the other hand cause European carriers to feel more pessismistic about their long term prospects in their primary markets.

US respondents agree more readily that important communication is communicated to employees to enable effective decision making, which indicates that they view this part of their management role higher than their European counterparts. Effective communication is important both as a motivating factor as well as providing for more effective decision making. The difference is probably due to the high demands of highly competitive environment in the United States.

Distribution is one of the fundamental aspects of any airlines' marketing operation. Apparently US carriers are more satisfied with the performance of their distribution outlets than European respondents. One must have in mind, though, that two new reservations systems have been installed since 1988, Amadeus and Galileo. Number of toothing problems have occurred in addition to the disadvantages of being non-owner like most new-entrants are. In view of that it is not surprising that European respondents are less satisfied.

Table H.1 Significant Differences Between Respondents of European and United States Carriers: Questionnaire Part I

Statement	*Population*	*Mean*	*Sig.*
Q53. The board of directors is highly involved in the airline's affairs	United States(22) Europe(23)	3.1818 4.5652	***
Q43. We have incentives for our staff that encourages extra commitment	United States(22) Europe(23)	3.6364 2.5652	**
Q34. Long term prospects in our primary markets are excellent	United States(22) Europe(23)	4.4091 3.4783	**
Q52. Important information is communicated to employees to enable effective decision making	United States(22) Europe(23)	4.2273 3.4348	*
Q23. We are pleased with the performance of our distribution outlets	United States(21) Europe(23)	3.8571 3.2609	*
Q28. The improvement of the airline's market share is our number one priority	United States(21) Europe(23)	2.5238 3.5217	*
Q32. We allocate major resources for diverisfication into other industries	United States(22) Europe(22)	1.0909 1.6818	*
Q40. Our internal social and political system support our business aims	United States(22) Europe(22)	3.8636 3.1364	*
Q36. Our service has a range of features that makes it distinctive	United States(22) Europe(23)	3.7727 4.4348	*

European carriers feel more strongly on the neccessity to improve market-share, which indicates that they assume that market-share somewhat important in a competitive environment. Their US counterparts disagree somewhat with the statement, which indicates that other priorities are considered more important.

Respondents from both European and United States disagreed that emphasis had been placed on diversification into other industries, which indicates that the sample airlines tend to stick to their core business. European carriers show nevertheless less

disagreement. This may be due to the fact that the smaller European airlines have in many instances limited ability to maximize their returns from their core business, so fringe businesses become necessary in order to maintain the profitability of the core business. This trend is likely to change as competition increases in Europe.

Respondents of US carriers agree on the average that the internal social and political system supports the airline's business aims, which indicates slightly more conformity with the company welfare rather than personal politics. The European respondents average in the center, which indicates that their social and political system may not support their company's business aims as strongly as in the United States although the system is not working against their company's.

European airlines have by tradition competed on service rather than price, as a result it is logical to see European respondents agree with their service having range of features that make it distinctive, more readily than US respondents. Both agree with the statement typically.

H.3 Questionnaire Part II

The importance of delegation is rated higher in the United States and the likely explanation is the necessity to empower the employees in order to maintain the highest possible efficiency level in order to stay competitive. This competition driven management philosophy has not found its way fully to European airlines as the findings show here.

Incentive programs are important to motivate employees and to maximize their worth to the organisation. It is apparent from the findings that United States carriers place more importance on incentive programs, both for managers and employees.

According to the findings United States carriers have placed much less importance on staff reduction than European carriers. This may be due to the inherent problems with European carriers' heavy unionisation that leads to inefficiencies compared to US carriers. This finding supports the believe that European carriers have been preparing for increased competition by trimming their cost structure through staff reduction. The importance placed on company culture is apparently greater at United States carriers.

Interlining agreements are deemed more important by European respondants than their US counterparts. This indicates that European new-entrant carriers are more dependent on interline traffic than US carriers, perhaps due to the limited scope of route possibilities. This limited scope is due to smaller geographical scope of intra-European air transport in comparison to that of the US and the heavy inclination of European flag carriers to trans-continental routes, unlike the US counterparts. These factors make interlining more important in order to pick up some of the trans-continental traffic on medium to shorter-haul intra-European routes.

One of the distinctive differences between highly deregulated and less dergulated market is the influence of the government on the company. European deregulation is just begining and many policy decisions were unsolved as this survey was performed. Thus, it is not surprising that European respondents still rate this statement higher than their United States counterparts.

Table H.2 Significant Differences Between Respondents of European and United States Carriers: Questionnaire Part II

	Past			Present			Future		
Statement	*Population*	*Mean*	*Sig.*			*Sig.*			*Sig*
Delegation	United States(24)	6.5833	***	United States(25)	7.0400	**			
	Europe(25)	4.3600		Europe(28)	5.5000				
Employees' incentive program	United States(25)	6.4000	***	United States(25)	7.2000	***	United States(25)	7.8400	***
	Europe(26)	3.6538		Europe(29)	4.1034		Europe(30)	5.3667	
Managers' incentive program	United States(25)	6.4400	**	United States(25)	6.8800	***	United States(26)	7.4231	**
	Europe(26)	3.9615		Europe(29)	4.1724		Europe(30)	5.5000	
Staff reduction	United States(23)	2.6087	**				United States(25)	3.3200	**
	Europe(25)	4.9200					Europe(29)	5.8966	
Company culture	United States(25)	7.7200	*	United States(25)	8.4800	**			
	Europe(26)	5.9231		Europe(29)	6.5517				
Interlining agreements	United States(25)	4.1200	*	United States(25)	4.2800	**	United States(26)	4.8077	**
	Europe(26)	5.9615		Europe(29)	6.6552		Europe(30)	7.4667	
Influencing government policy on aviation	United States(24)	4.6667	*						
	Europe(26)	6.5385							
Acquisition of airport slots	United States(25)	5.0400	*	United States(25)	4.2000	***	United States(26)	4.2692	***
	Europe(26)	6.9615		Europe(29)	7.8276		Europe(30)	8.4667	
Alliance with the incumbents	United States(24)	2.4167	*						
	Europe(24)	3.9167							
Price leadership in served markets	United States(24)	7.7500	*						
	Europe(26)	6.0385							
Employee relations				United States(25)	8.4000	**	United States(26)	8.8846	**
				Europe(29)	6.9655		Europe(30)	7.7000	
Commission overrides				United States(25)	4.3200	**	United States(26)	4.1538	***
				Europe(29)	6.0000		Europe(30)	6.3333	
Shared company vision				United States(25)	7.6800	**			
				Europe(29)	5.8621				
Reduction of CRS bias affecting the airline				United States(24)	5.0833	**	United States(24)	5.3333	**
				Europe(28)	7.0000		Europe(29)	7.6897	
Achieving critical mass				United States(25)	4.0000	*	United States(26)	4.4615	*
				Europe(28)	5.9643		Europe(29)	6.4828	
Market share				United States(25)	4.4800	*	United States(26)	4.8077	*
				Europe(29)	6.2069		Europe(30)	6.7667	
Merger/acquisition to gain market share				United States(25)	1.8800	*	United States(26)	2.4615	*
				Europe(27)	3.4815		Europe(28)	4.1071	
Job rotation				United States(25)	5.4000	*			
				Europe(28)	3.7857				
Increase margins				United States(25)	8.2400	*			
				Europe(29)	7.1724				
Employees' autonomy to take decisions				United States(25)	6.8400	*			
				Europe(28)	5.6429				
Diversification into other industries				United States(25)	.5200	*			
				Europe(27)	1.4444				
Yield management system							United States(26)	6.9231	*
							Europe(30)	8.5667	
Computer reservation systems							United States(26)	7.0385	*
							Europe(30)	8.4000	
Feeder airline agreements							United States(25)	4.3600	*
							Europe(29)	6.2759	
Operation on trunk routes							United States(24)	4.3750	*
							Europe(29)	6.1379	

As higher proportion of European airports is congested it is of greater importance for European carriers to place higher importance on the acquisition of airport slots.

Alliance with the incumbents has been viewed as important by many European airlines as a preparation for increased competition of the liberalisation process.

Although both European and US respondents rate the importance low it is seemingly lower in the US. The reason may be that the carriers included in the sample were independents, thus, this may not reflect the general importance placed on alliances with incumbents.

Looking at the *present* column, one can see that employee relations, shared company vision, job rotation, increased margins, employees autonomy, are emphasised more by US carriers, while commission overrides, reduction of CRS bias, achievement of critical mass, market-share, merger/acquisition to gain market-share and diversification are emphasised more by European new-entrant carriers. These differences are especially apparent for for merger/acquisition to gain market-share, where the European average is 3.5 but the US average only 1.9. The factors having the highest mean are: employee relations, increase margins, shared company vision and achieving critical mass.

Factors emphasised significantly more by European carriers in the future are: yield management system, computer reservation system, feeder airline agreements and operations on trunk routes.

The overall conclusion from this account is that European new-entrant airlines are trying to shed their inefficiencies to improve profitability. Their existance is, however, still very much colored by the politically strong flag carriers, making alliances and mergers frequent in Europe. Nevertheless, the underlying tone implies that changes are occurring in new-entrants' strategy as emphasis on trunk routes, yield management and distribution show in the future column.

Appendix-I Questionnaire Research Variables

Table I.1 Part A: Questionnaire Research Variables

Questionnaire item	Type	Factor group	Research variable	Rationalisation	Indication if "agreement" or "much emphasis"
Competitor analysis	F	Environment	Competitors	Must be a constant process to be able to take informed strategic decisions	'we need to align our strategy with our competitor's strategy'
Government or EC lobbying to improve the airline's competitive status	F	Environment	Strategy	NE airlines are at a disadvantage	'we need to gain equal rights'
We are more efficient than most of our competitors.	A	Environment	Competitors	Important strategic advantage	"we are in a good position strategically"
Reduction of fuel costs (fuel efficient aircraft, etc.)	F	Finance	Control	Neccessary to reduce costs	'we want to lower our costs'
Reduction of CRS usage costs	F	Finance	Control	Necessary to reduce costs	'we want to lower our costs'
Strict financial control	F	Finance	Control	Very important if low cost structure is to be achieved	'we want to increase our margin or maintain price leadership'
Low cost-structure	F	Finance	Control	Important if sufficient margins are to be realized	'we want to increase our margin or maintain price leadership'
Low debt	F	Finance	Control	Important to reduce adverse effects of cyclical markets on returns (Low leverage)	'we want to stay strong when external environment gets tough'
We make effective cash-flow forecasts.	A	Finance	Control	Essential to avoid cash crisis	"we reduce the chances of cash crisis"
We have done internal analysis that has revealed the major cost areas and other key issues we need to monitor.	A	Finance	Control	It is important to identify where adjustments can be made in costs.	"we know where to save"
Turnover growth	F	Finance	Growth	Growth allows the company to acquire more employees and assets (Critical mass)	'we want become big'
Lack of capital will not limit our growth.	A	Finance	Growth	Capital is the fueling of growth.	"we will be able to grow as expected"
We do allocate major resources on diversification.	A	Finance	Growth	Diversification is risky.	"we are in cyclical and/or troubled business"
Leasing of aircraft	F	Finance	Growth	Allows the airline to show healthier balance sheet. (False health)	'we want show better health than we really have'
Investor's positive attitudes to the airline	F	Finance	Growth	Increases the availability of capital.(Financing of growth/losses)	'we need to have access to external capital'
High margins	F	Finance	Control	Increases profitability.	'we want to increase our profitability'
Emphasis on long-term rather than short-term profits.	F	Finance	Strategy	Increases the long-term health of the company	'we are future orientated'
Critical mass (minimum investment necessary before profits will be made)	F	Finance	Growth	Perhaps necessary to become profitable.	'we need to become profitable'
Acquisition of new aircraft	F	Finance	Costs	Increases costs in the short-run	'we must be competitive in the long-run'
Effective financial information system	F	Information system and communication	Decisions	Important so management will knows where the company stands as decisions are made	' we want to know what effect our decisions have on the company's financial status'
Good interdepartmental communication	F	Information system and communication	Change	Internal efficiency reduces costs (Reduces resistance to change)	"we want to reduce our costs"
Yield management system	F	Information system and communication	Control	Revenue maximization (Makes pricing decisions more effcient)	"we want to maximize our market receipts"
Our financial control system is efficient.	A	Information system and communication	Control	Important to monitor critical areas (Reduces costs)	"Cost streamlining"

Table I.1 Part B: Questionnaire Research Variables

Questionnaire item	Type	Factor group	Research variable	Rationalisation	Indication if "agreement" or "much emphasis"
We have identified what critical information we need to stimulate demand for our services.	A	Information system and communication	Decision	Reduces waste of decisions based on little or wrong information.	"Better use of potential"
Critical information is communicated to staff to enable them to make effective decisions.	A	Information system and communication	Decision	Reduces waste (Internal efficiency)	"priorities known"
We are rarely taken by surprise by our business environment	A	Information system and communication	Environment	Monitoring of environment	"constant evaluation of direction"
Our Information systems provide quick, accurate and relevant critical information.	A	Information system and communication	Quality	Efficient MIS is important if informed decisions are to be made	"confidence in MIS"
We have all the information we need on our customers, markets and opportunities.	A	Information system and communication	Markets	Market intelligence system for informed marketing decision making	"constant evaluation of direction"
Our information system provides us with a clear competitive advantage.	A	Information system and communication	Competitors	Superior intelligence gathering	"we know more than the competitors"
We are constantly upgrading and improving our information system.	A	Information system and communication	Quality	Allocation of resources to MIS	"we understand the meaning of information"
Management information system	F	Information system and communication	Quality	Good MIS is the heart of the decision making apparatus, without it efficient decisions can not be made	"we need to improve our MIS system"
What is your age?	Q	Management	Experience	The higher the manager's age the better is the company performance of small businesses	assumed level of experience
Our people resource adds real value to our business.	A	Management	Motivation	Good staff increases efficiency	"we are satisfied with our staff"
Involved board of directors	F	Management	Control	Involved board increases management performance	"the airline has better chance of surviving"
The airline's executives surround themselves with people who promote distinctly different orientations and points of view.	A	Management	Support	Well informed executives incur less risk	"the executives are not isolated"
Group consensus is the usual way we make decisions.	A	Management	Decisions	Reduces risk and motivates conformity to decisions	"we are a team"
Our staff is encouraged to have open discussion about the airline's problems.	A	Management	Support	If the staff has a saying it increases conformity to change	"our people are important"
We do detailed analysis before taking any major decision.	A	Management	Decisions	Entrepreunerial companies may make premature decisions	"we are a professional company"
We usually receive many useful suggestions from our employees.	A	Management	Support	Bottom up information flow increases efficiency in larger org.	"we listen to our people"

Table I.1 Part C: Questionnaire Research Variables

Questionnaire item	Type	Factor group	Research variable	Rationalisation	Indication if "agreement" or "much emphasis"
People are rewarded for taking actions that benefit our customers.	A	Management	Customer delight	Empowerment of employees increases efficiency	"we trust our people"
Strong centralised leadership	F	Management	Delegation	Centralisation can be beneficient for small business but liability for large.	"we don't trust our staff"
Employees autonomy to take decisions	F	Management	Delegation	Management's autonomy saves time and money	"we are inefficient but want to improve"
Management's education level	F	Management	Education	The larger the organisation the better to have educated staff	"we want our staff to understand where we are going and get us there"
How many years of formal education have you completed?	Q	Management	Education	Education level influences how you manage	
If your formal education is more than 12 years, what was(were) your field(s) of specialisation?	Q	Management	Education		
We have customer-oriented front-line people.	A	Management	Customer delight	Customer oriented staff increases customer satisfaction	"we are satisfied with our service quality"
Management's experience	F	Management	Experience	The greater the management's experience the less likely it is to make fundamental mistakes	"we need more experienced management"
For how long have you been employed with the airline?	Q	Management	Experience	Airline experience is advantageuos	
In what management related positions have you been employed?	Q	Management	Experience	Management experience is advantageous	
A new entrant airline's success is largely dependent on factors out of its control.	A	Management	Environment	The external environment is only part of the business problems	"We are reactive and powerless"
Management's external contacts (Government, etc.)	F	Management	Environment	Necessary to avoid being caught unaware	"we know our external environment"
We are constantly identifying threats and opportunities to our business	A	Management	Environment	The business knows its constraints	"we know where we can go"
Our social and political system support our business aims.	A	Management	Politics	The informal structure has to work with the airline	"we have favourable political climate"
We are good at changing our people's beliefs and values.	A	Management	Change	The ability to implement change increases the airline's flexibility	"the people work with us"
Everyone in our business understands our mission and finds it motivating	A	Management	Mission	It increases motivation	"the statement has had an impact"
We use our mission statement to guide our business decisions.	A	Management	Mission	Management has to adapt the mission for it to be effective	"we believe in the mission"
Our mission statement describes accurately our true identity and what we are about.	A	Management	Mission	The mission has to be realistic to be adopted	"we like it"
Management's adherence to a set mission	F	Management	Mission	The mission is important because it states where the comapny is heading	"there is a discrepancy between our mission and our management's actions"
Our people provide us with a competitive advantage.	A	Management	Customer delight	Well motivated staff increases customer satisfaction	"we are good at motivating our staff"
We have incentives for our staff that encourages extra commitment	A	Management	Customer delight	Well motivated staff increases customer satisfaction	"if our staff do well they will benefit"
Do managers own shares in the company? What is your approximate share holding, if any?	Q	Management	Motivation		
The number of serious problems we are faced with increases constantly.	A	Management	Organisation	Increased pressure may stem from inadequate org. structure.	"we are having a lot of problems running the company"

Table I.1 Part D: Questionnaire Research Variables

Questionnaire item	Type	Factor group	Research variable	Rationalisation	Indication if "agreement" or "much emphasis"
Everyone in our business understands how they can improve our service quality.	A	Management	Quality	Quality increases number of customers and retention	"we are quality concerned"
The airline's direction is shared and understood by all the employees.	A	Management	Motivation	If the company knows where it is heading it knows how to get there.	"we know where we are going"
We are future focused company.	A	Management	Vision	The future should have impact on the present.	"we know what to anticipate"
We usually have enough resources to plan for the future.	A	Management	Growth	It is important to prepare for the future	"we aknowledge the importance of the future by allocating resources on it"
Travel agent's favourable attitudes towards the airline	F	Marketing	Distribution	Neccessary to gain as much as possible from the distribution system	'we understand the TA effect on our profitability'
Acquisition of quality terminal space and ground facilities	F	Marketing	Environment	Necessary to provide competitive service	'we must provide as good service as our competitors'
Acquisition of airport slots	F	Marketing	Environment	Necessary to provide convenient flights	'we need to increase our competitiveness'
Access to distribution systems	F	Marketing	Distribution	Access to distribution systems is fundamental to be able to sell the service	"we are not satified with our access to distribution channels"
We make changes in our service quite frequently.	A	Marketing	Flexibility	The service has to adapt to customer's needs and wants.	"we know what our customers want, and respond to those wants"
Our business is flexible enough to respond immediately to major opportunities.	A	Marketing	Flexibility	If the airline is non-beaurocratic it can grab opportunities successfully	"we are decentralised and well staffed"
Long-term prospects in our primary markets are excellent.	A	Marketing	Growth	It is an advantage to be in a growing market	"we can stick to our main market"
We have analysed what the difference is between our customers' needs and wants.	A	Marketing	Customer commitment	It is important to fulfil all the needs of the customers, as the wants define the competitive advantage	"we know what our customer's wants and needs are"
We are satisfied with our marketing performance.	A	Marketing	Performance	Good marketing performance is the fundamental to competitive advantage	"we are doing well"
Our marketing is aggressive.	A	Marketing	Performance	Agressive marketing can mean incumbent retaliation	"we take risks"
Our customer loyalty is strong.	A	Marketing	Customer delight	Customer loyalty is important due to the high cost of gaining customers	"we know our customers worth, and we satisfy their needs"
We fulfil our customer's needs well.	A	Marketing	Customer delight	It is important to act upon important data on customer needs	"we satisfy our customer's needs well"
We act immediately upon customer complaints.	A	Marketing	Customer delight	Customer complaints is a important indicator of performance	"we use customer complaints to manage more efficiently"
Quality is our major competitive advantage.	A	Marketing	Quality	Quality can be as important strategy as price leadership	"we put our quality in the forefront"
We monitor our customer's expectation of quality through regular in-flight surveys.	A	Marketing	Quality	Quality is important to measure for necessary adjustments	"We monitor our own performance"
High service quality	F	Marketing	Quality	Quality is the basis for customer satisfaction.	"we need to step up our quality"
We try to avoid going into head to head competition with our largest competitor.	A	Marketing	Strategy	Direct agressive competition can attract more attention than deserved.	"we try to minimize rivalry"
We grow by selling our services to more customers.	A	Marketing	Growth	Internal growth is the safest way to grow.	"we are careful in our growth strategy"
Our service has a range of features that makes it distinctive.	A	Marketing	Service	The airline must develop its unique selling proposition.	"we are different"
We plan for and allocate sufficient resources to developing new markets	A	Marketing	Growth	The airline must prepare its growth alternatives carefully	"we are pro-active towards growth opportunities"
Alliance with the incumbents	F	Marketing	Strategy	Alliance with the incumbents is necessary to reduce rivalry	"we want to avoid bloody competition"
Merger to gain market share	F	Marketing	Growth	Market share is important to gain economies of scale	"we have to gain market share or we will fail"

Table I.1 Part E: Questionnaire Research Variables

Questionnaire item	Type	Factor group	Research variable	Rationalisation	Indication if "agreement" or "much emphasis"
Diversification into other industries	F	Marketing	Growth	Diverisfication is necessary to reduce cyclical effects on revenue or decline	"we are in cash flow danger or reaching maturity and need to avoid it at all costs"
Frequent flyer programs	F	Marketing	Loyalty	Incentives for customers are important so they will stay with us	"we must offer no less than everybody else"
Operation on trunk routes	F	Marketing	Strategy	The highest portion of the total market travels on the trunk routes	'we want to play with the big boys'
Business passengers	F	Marketing	Strategy	Business passengers pay the highest fares	'we want to enhance our service level to reach more BP`s
Large overall market share	F	Marketing	Strategy	Large market share has directi influence on ROI	'we want to increase our profitability'
Emphasis on price competition	F	Marketing	Strategy	The lowest price has direct relationship with the number of pax attracted	'we want to attract as many pax as possible'
High passenger load factors	F	Marketing	Control	Increases revenue if fares are reasonable	'we must gain market share'
High frequency in served markets	F	Marketing	Strategy	Increases market share	'we must gain market share'
Hub and spoke operations	F	Marketing	Strategy	Creates economies of scale	'we have to increase our economies'
Long haul routes	F	Marketing	Strategy	Reduce unit costs	'we must keep our unit costs down'
Interlining agreements	F	Marketing	Strategy	Enlarges potential market	'we must have access to the larger market'
Code sharing	F	Marketing	Strategy	Fools the passenger	'we must fool the passenger to increase our short-term gain
High aircraft utilisation	F	Operations	Control	Reduces costs	'we need to keep costs at its lowest
Matching of aircraft size with route requirement	F	Operations	Control	Increases efficiency	'we must increase our efficiency'
Feeder ownership/agreements	F	Operations	Strategy	Increases efficiencies	'we must increase our efficiency'
Organisational culture (shared attitudes, beliefs, norms).	F	Organisation	Culture	The culture has to support the organization	
Decentralised organisational structure.	F	Organisation	Delegation	Delegation reinforces success as the airl. grows	
Diversified administrative team's background.	F	Organisation	Experience	Different point of views reduce the likelyhood of very flawed decisions	"balanced decisions"
Good employee relations.	F	Organisation	Motivation	Well informed and participating workforce makes the airline efficient and flexible	"our workforce is important to our success"
Incentive program for employees.	F	Organisation	Motivation	Highly motivated workforce provides this necessary extra thing	"our workforce is important to our success"
The executives build partnerships with all their key people.	A	Organisation	Support	An executive needs support to be effective	"well informed executive"
High labour productivity	F	Organisation	Output	High employee output increases efficiency	"we want to get the most out of our employee resource"
Our organisational structure is decentralised.	A	Organisation	Structure	Decentralised organisational structure is more effective as size incr.	"we cherish flexibility of the organisation"
Starting from scratch and given a clean sheet of paper we would create exactly the same structure as we have right now	A	Organisation	Structure	Are there any problems with the current structure?	"satisfactory structure"
Good union relations	F	Organisation	Unions	Good union relations can reduce the likelyhood of clashes	"We want to avoid labour disputes"
Operations without unionised staff (where possible)	F	Organisation	Unions	Unionized workforce is costlier than non-unionised	"we want full control over our workforce and its costs"
Shared company vision	F	Organisation	Vision	If the workforce knows where the company is heading and likes it, they will become motivated to get there	"we want to motivate our workforce"

Appendix-J Classification of Airlines into Loss and Non-loss Makers

Table J.1 Classification of Airlines into Loss and Non-loss Makers

Airline	*1989*	*1990*	*1991*	*1992*	*Status*	*Notes*
101	na	na	na	na	No-loss	
104	Profit	Profit	Loss	na	Loss	
105	Profit	Loss	Loss	Loss	Loss	Chapter XI
106	Profit	Profit	Profit	Profit/Loss	No-loss	
107	na	na	na	Loss	Loss	
108	Profit	Profit/Loss	Loss	Profit	No-loss	
109	Loss	Profit	Loss	Profit	No-loss	
111	na	na	na	na	No-loss	
113	Profit	na	Profit/Loss	Profit	No-loss	
114	Profit	Profit	Loss	na	Loss	
115	Profit	Profit	Profit	Profit	No-loss	
117	na	na	Profit	Profit	No-loss	
118	Profit	Profit	Profit	Profit	No-loss	
119	Profit	Loss	Profit/Loss	Loss	Loss	
120	Profit	Profit	Profit	Profit	No-loss	
122	Profit	Profit	Profit	na	No-loss	
201	Profit	Loss	Loss	na	Loss	
202	na	na	na	Loss	Loss	Failed ('94)
203	na	Loss	Loss	Profit/Loss	Loss	
204	na	na	na	na	No-loss[a]	
206	na	na	na	Loss	Loss[a]	
301					Loss	Failed
304					Loss	Failed
306					Loss	Failed
307					Loss	Failed
313					Loss	Failed

Appendix-K Results of Factor Analysis

Table K.1 Factor Solution I, Oblimin Rotation, No Group Fusion[a]

Financial						
Factor 1	Cost reduction	Increase margins	Debt reduction	Cost control	Reduction of labour costs	
Factor 2	Off-balance-sheet financing of aircraft	Turnover growth	Fuel costs			
Factor 3	Long-term rather than short-term profits	Achieving critical mass				
Management						
Factor 1	Company culture	Employee relations	Managers' incentive program	Employees' incentive program	Flexible job descriptions	Management teams
Factor 2	Operations without unionised staff	(-) Union relations	(-) Employees productivity			
Factor 3	Decentralised organisation structure	Job rotation				
Factor 4	(-) Employees autonomy to take decisions	(-) Company mission	(-) Delegation	(-) Shared company vision		
Factor 5	Staff reduction	Management's external contacts				
Marketing						
Factor 1	Brand image	Media advertising	Market research	Service quality	Frequent flyer programs	
Factor 2	Merger/acquisition to gain market-share	Diversification into other industries	Alliance with the incumbents			
Factor 3	Weight load-factor	Market-share	Passenger load-factor	Promotion		
Factor 4	Avoidance of price wars	(-) Expansion into new markets				
Factor 5	Business passengers	Price leadership in served markets	Commission overrrides	Distribution network		
Information						
Factor 1	Motivation systems	Planning systems	Logistics systems	Market-intelligent information and communication	Control systems	Simplification of information and communication
Factor 2	Yield management system	Computer reservation system				
Operations						
Factor 1	Freight operations	Code sharing	Long-haul routes	Feeder airline agreements	Operation on trunk routes	Quality of terminal space and ground facilities
Factor 2	Aircraft utilisation	Homogeneous aircraft fleet	Frequency in served markets			
Factor 3	Interlining agreements	Acquisition of airport slots	Hub and spoke operations	Matching aircraft size with route requirement		
Factor 4	Acquisition of new aircraft					
Environment						
Factor 1	Favourable attitude of travel agents	Reduction of CRS bias affecting the airline	Competitor analaysis	Influencing government policy on aviation	Forecasting adverse effects of the economy on the airline	Investors' attitudes towards the airline

[a] Group fusion means that the group segregation used on the questionnaire form is broken up in order to group together all factors that could possibly interact with each other.

Table K.2 Factor Solution II, Oblimin Rotation, Group Fusion[a] Allowed

Operations and Marketing							
Factor 1	Brand image	Service quality	Media advertising	Quality of terminal space and ground facilities			
Factor 2	Long-haul routes	Freight operations	(-) Frequency in served markets	(-) Acquisition of airport slots			
Factor 3	(-) Business strategy	(-) Market-intelligent information and communication system	(-) Market research	(-) Competitor analysis	(-) Computer reservation system		
Factor 4	Expansion into new markets	Promotion					
Factor 5	Influencing government policy on aviation	Operation on trunk routes	Favourable attitude of travel agents	Investors' attitudes towards the airline			
Factor 6	(-) Code sharing	(-) Yield management system	(-) Reduction of CRS bias affecting the airline	(-) Frequent flyer programs	(-) Business passengers	(-) Feeder airline agreements	
Factor 7	Distribution network	Interlining agreements	Matching aircraft size with route requirement	Hub and spoke operations	Commission overrides		
Factor 8	(-) Passenger load-factor	(-) Weight load-factor	(-) Market-share	(-) Price leadership in served markets			
Factor 9	Merger/acquisition to gain market-share	Diversification into other industries	Alliance with the incumbents				
Factor 10	Avoidance of price wars						
Financial							
Factor 1	Cost control	Employees' productivity	Cost reduction	Flexible job descriptions	Increase margins	Aircraft utilisation	D
Factor 2	Off-balance-sheet financing of aircraft	Turnover growth	Fuel costs	Achieving critical mass			
Factor 3	Reduction of labour costs	Staff reduction					
Factor 4	Long-term rather than short-term profits	Acquisition of of new aircraft					
Management							
Factor 1	Employees autonomy to take decisions	Delegation	Company mission	Shared company vision	Company culture		
Factor 2	Logistics systems	Forecasting adverse effects of the economy on the airline	Motivation systems	Control systems	Simplification of information and communication system	Interdepartmental communication	
Factor 3	(-) Managers' incentive program	(-) Employees' incentive program	Union relations				
Factor 4	Management's external contacts	Employee relations	(Union relations)				
Factor 5	Decentralised organisation structure	Job rotation	Management teams				

[a] Group fusion means that the group segregation used on the questionnaire form is broken up in order to group together all factors that could possibly interact with each other.

Appendix-L Failure Prediction Models

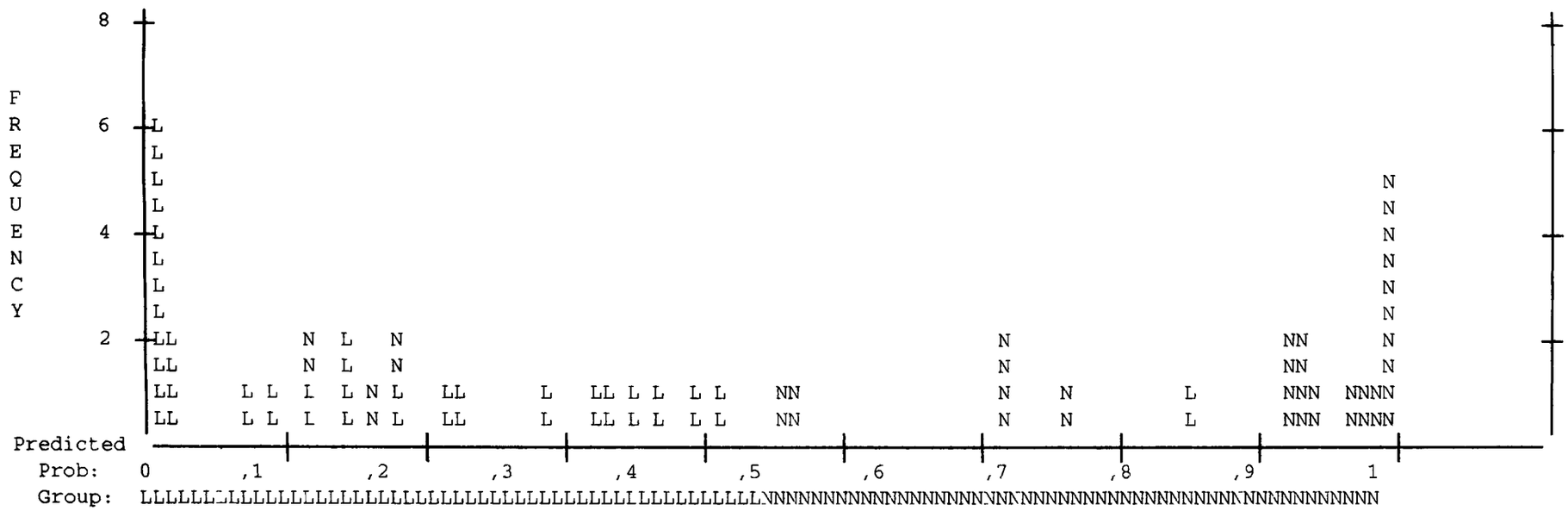
L.1 Questionnaire Part I - Model Q1

Observed		Predicted: Loss (L)	Predicted: No-loss (N)	Percent Correct
Loss	L	23	1	95,83%
No-loss	N	3	18	85,71%
			Overall	91,11%

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Q6	-1,0158	,6803	2,2292	1	,1354	-,0607	,3621
Q13	1,4569	1,2636	1,3293	1	,2489	,0000	4,2927
Q25	1,7224	,6891	6,2469	1	,0124	,2613	5,5981
Q26	1,1385	,5224	4,7492	1	,0293	,2103	3,1221
Q45	-1,4643	,6533	5,0236	1	,0250	-,2205	,2312
Q17	-1,1002	,6995	2,4739	1	,1158	-,0873	,3328
Q5	-,7493	,4833	2,4033	1	,1211	-,0805	,4727
Constant	-,9600	6,3390	,0229	1	,8796		

Q6	The airline's success is largely dependent on factors out of its control
Q13	We fulfil our customers' needs well
Q25	Lack of capital will not limit our growth
Q25	Everyone in our airline understands our long term aims and objectives
Q45	Employees are rewarded for taking actions that benefit our customers
Q17	Our marketing is aggressive
Q5	Group consensus is the usual way we make decisions

Observed Groups and Predicted Probabilities


FREQUENCY
8
6
4
2
Predicted
Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: LLLL

L.2 Questionnaire Part II - Past - Model QIIPA

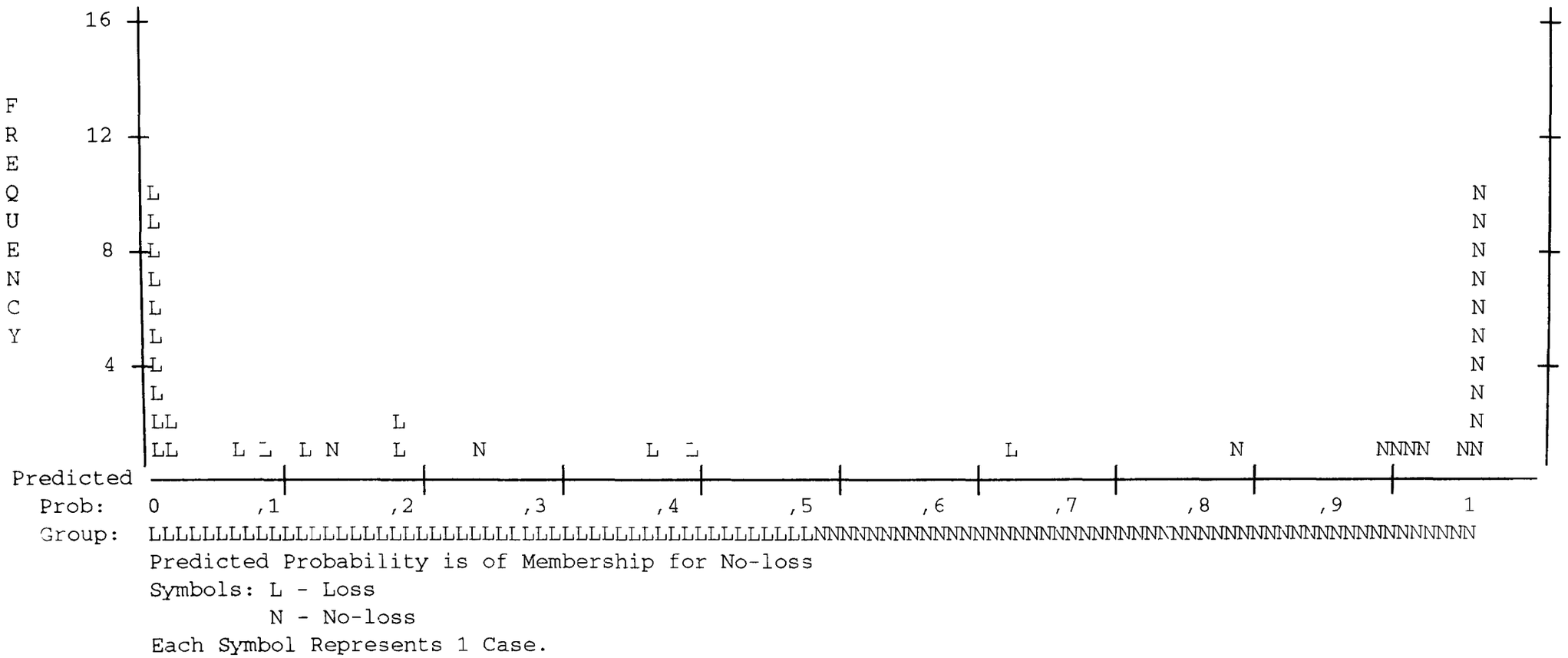
Observed		Predicted: Loss (L)	Predicted: No-loss (N)	Percent Correct
Loss	L	19	1	95,00%
No-loss	N	2	16	88,89%
			Overall	92,11%

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Q75A	-,7265	,3252	4,9906	1	,0255	-,2385	,4836
Q70A	-1,6669	,9377	3,1599	1	,0755	-,1485	,1888
Q109A	1,4891	,7622	3,8165	1	,0507	,1859	4,4331
Q80A	1,2904	,8457	2,3285	1	,1270	,0790	3,6343
Constant	-6,4536	5,3157	1,4739	1	,2247		

Q75A	Past - Hub and spoke operations
Q70A	Past - Computer reservation system
Q109A	Past - Service quality
Q80A	Past - Homogeneous aircraft fleet

	Constant	Q75A	Q70A	Q109A	Q
Constant	1,00000	,52493	,60987	-,86870	-,78
Q75A	,52493	1,00000	,33437	-,73455	-,34
Q70A	,60987	,33437	1,00000	-,75604	-,92
Q109A	-,86870	-,73455	-,75604	1,00000	,75
Q80A	-,78261	-,34869	-,92086	,75539	1,00

Observed Groups and Predicted Probabilities


FREQUENCY
16
12
8
4
Predicted
Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: LLLL

L.3 Questionnaire Part II - Present - Model QIIPR

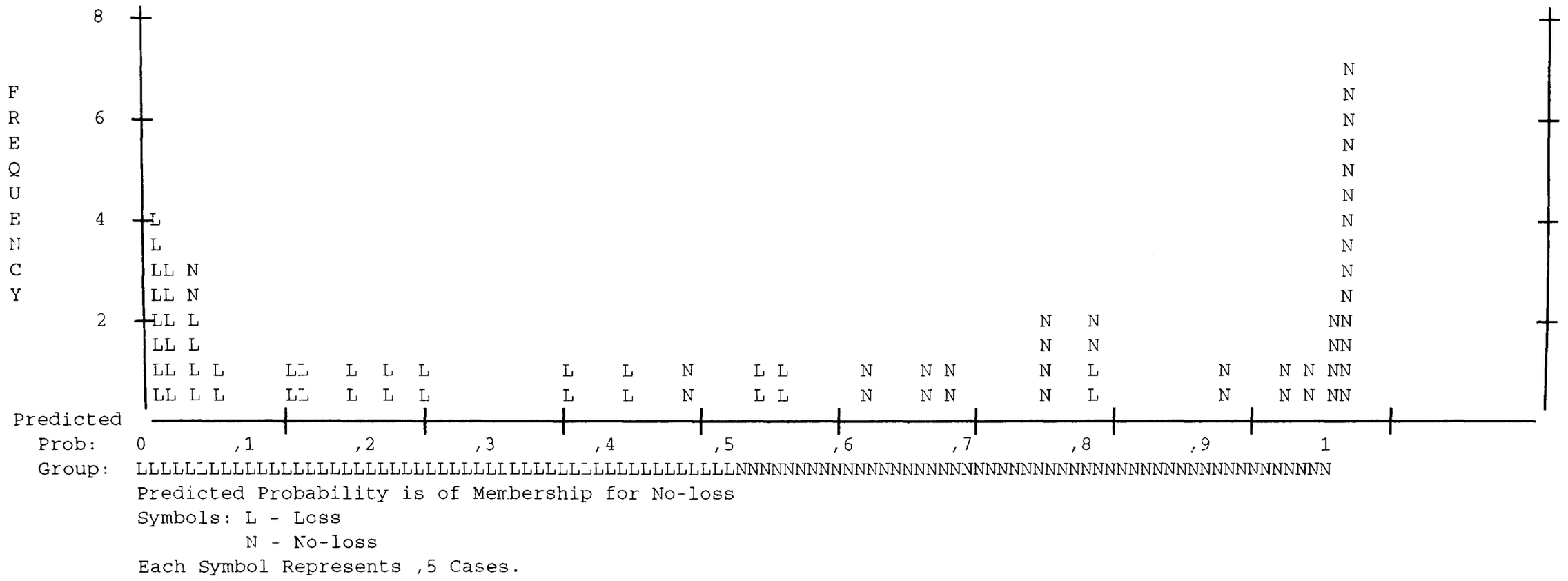
		Predicted Loss L	Predicted No-loss N	Percent Corre
Observed Loss	L	17	3	85,00%
No-loss	N	2	18	90,00%
			Overall	87,50%

Variable	B	S.E.	Wald	df	Sig	R	Exp
Q90B	-1,0557	,4194	6,3366	1	,0118	-,2797	,3
Q103B	-,9030	,3809	5,6197	1	,0178	-,2555	,4
Q114B	,8302	,3654	5,1616	1	,0231	,2388	2,2
Q71B	1,2767	,5919	4,6529	1	,0310	,2187	3,5
Constant	-6,5933	3,7024	3,1713	1	,0749		

Q90B	Present - Job rotation
Q103B	Present - Alliance with the incumbents
Q114B	Present - Media advertising
Q71B	Present - Aircraft utilisation

	Constant	Q90B	Q103B	Q114B	Q7
Constant	1,00000	,39982	,39634	-,53074	-,79
Q90B	,39982	1,00000	,74951	-,50292	-,74
Q103B	,39634	,74951	1,00000	-,59521	-,69
Q114B	-,53074	-,50292	-,59521	1,00000	,34
Q71B	-,79468	-,74955	-,69875	,34919	1,00

Observed Groups and Predicted Probabilities


FREQUENCY
8
6
4
2
Predicted
Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLNNN

L.4 Questionnaire Part II - Future - Model QIIFU

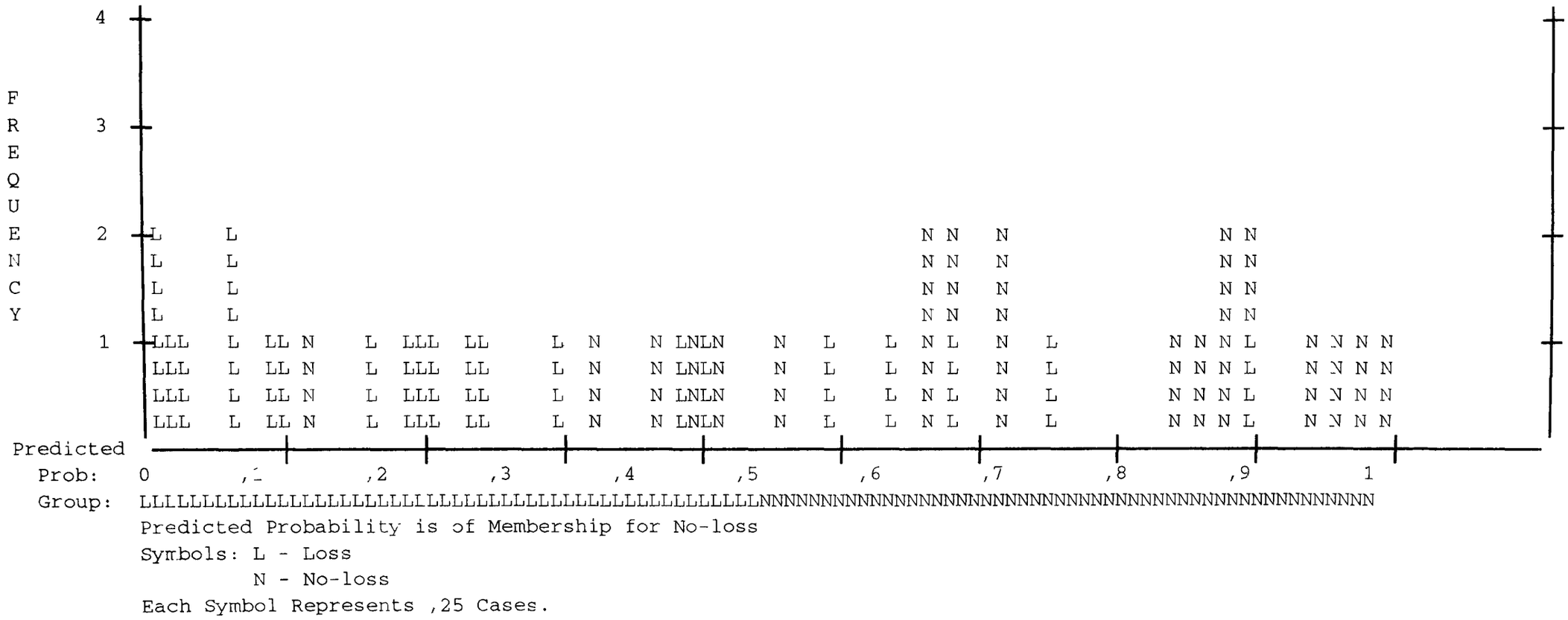
		Predicted Loss L	Predicted No-loss N	Percent Corre
Observed Loss	L	17	5	77,27%
No-loss	N	5	15	75,00%
			Overall	76,19%

Variable	B	S.E.	Wald	df	Sig	R	Exp
Q90C	-,3712	,2002	3,4377	1	,0637	-,1573	,6
Q122C	1,0411	,4040	6,6411	1	,0100	,2826	2,8
Q68C	-,9561	,3769	6,4332	1	,0112	-,2762	,3
Constant	-,1489	2,9464	,0026	1	,9597		

Q75C	Future - Hub and spoke operations
Q90C	Future - Job rotation
Q103C	Future - Alliance with the incumbents
Q122C	Future - Cost reduction
Q56C	Future - Favourable attitude of travel agents
Q112C	Future - Expansion into new markets
Q68C	Future - Market-intelligent information- and communication system

	Constant	Q90C	Q122C	Q6
Constant	1,00000	-,12180	-,51696	-,319
Q90C	-,12180	1,00000	-,33533	,210
Q122C	-,51696	-,33533	1,00000	-,601
Q68C	-,31918	,21010	-,60132	1,000

Observed Groups and Predicted Probabilities



Predicted Probability is of Membership for No-loss

Symbols: L - Loss

N - No-loss

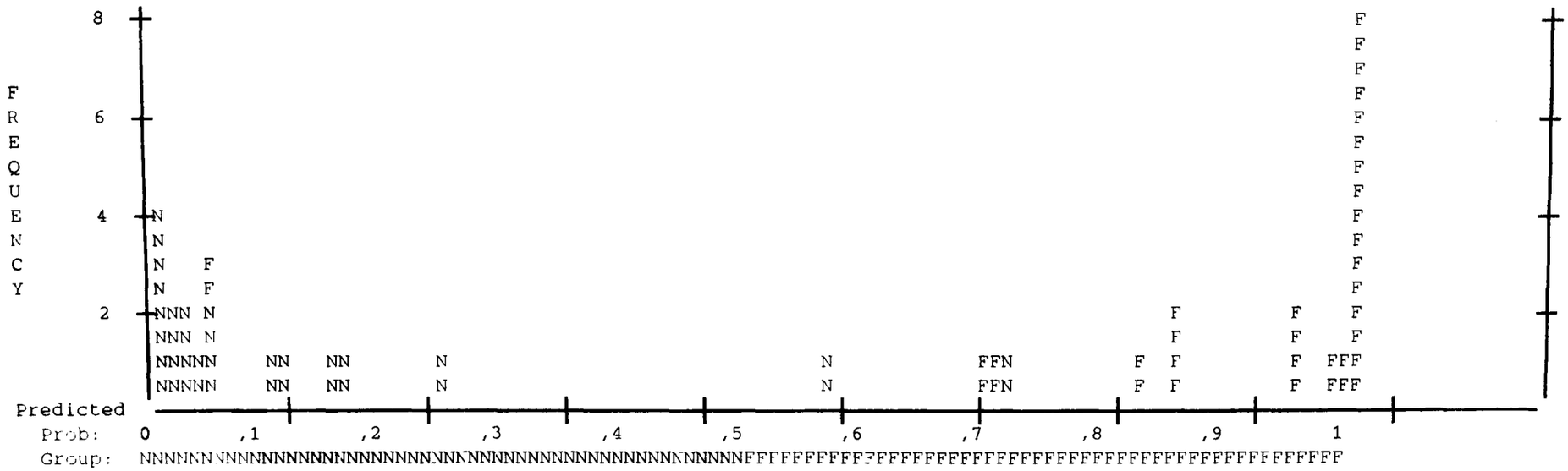
Each Symbol Represents ,25 Cases.

L.5 Financial1 - Year 1

Observed		Non-failed N	Failed F	Percent Corr
Non-failed	N	16	2	88,89%
Failed	F	1	17	94,44%
			Overall	91,67%

Variable	B	S.E.	Wald	df	Sig	R	Exp
EBIT_SAL	-49,0844	17,3344	8,0181	1	,0046	-,3473	,'
Constant	-,0386	,6613	,0034	1	,9534		

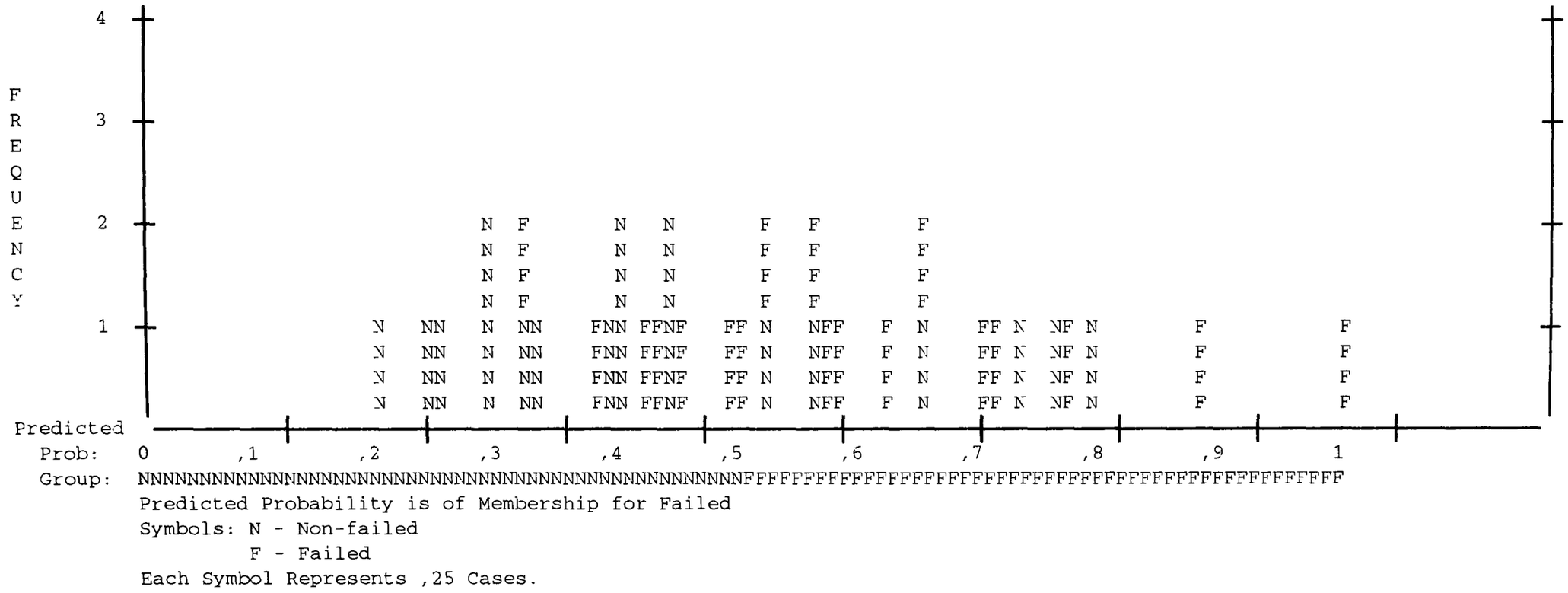
Observed Groups and Predicted Probabilities


FREQUENCY
8
6
4
2
F
F
F

L.6 Financial1 - Year 2

		Predicted		
		Non-failed	Failed	Percent Corr
		N	F	
Observed				
Non-failed	N	12	6	66,67%
Failed	F	7	11	61,11%
			Overall	63,89%

Variable	B	S.E.	Wald	df	Sig	R	Exp
EBIT_SAL	-9,8130	4,8794	4,0446	1	,0443	-,2024	,'
Constant	-,0517	,3601	,0206	1	,8858		

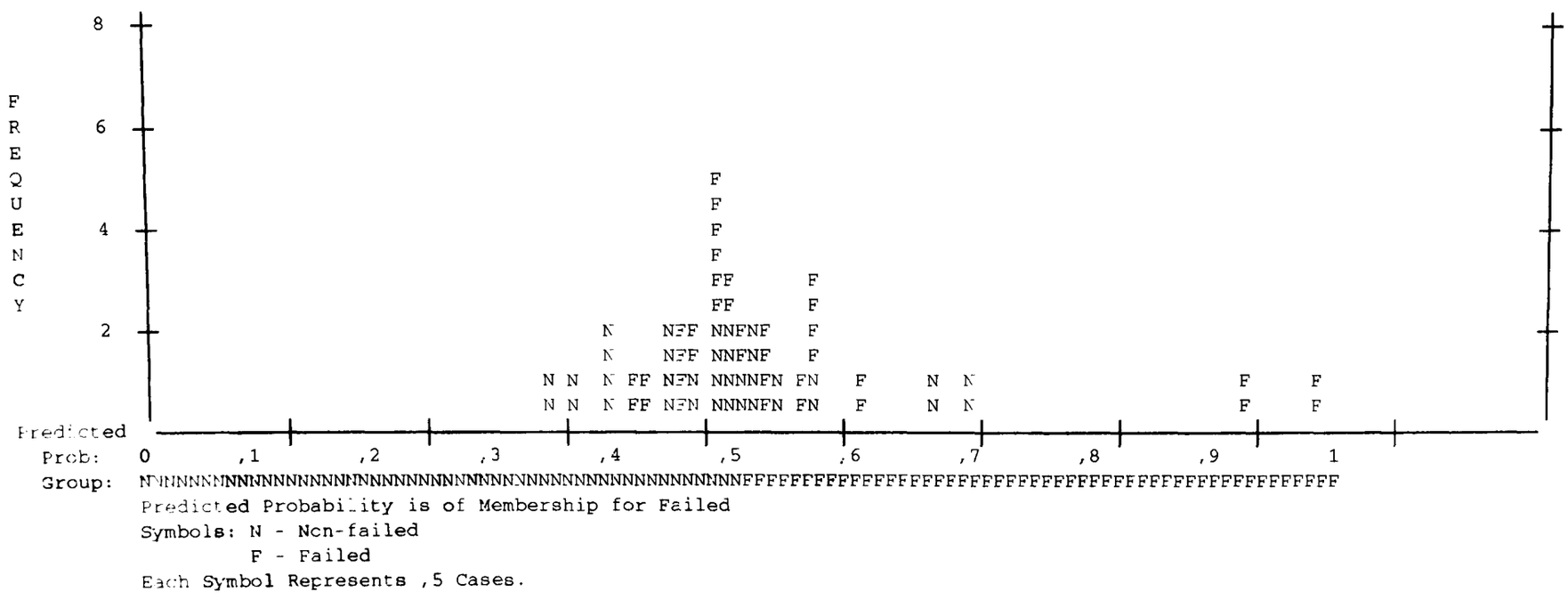

Observed Groups and Predicted Probabilities
FREQUENCY
4
3
2
1
Predicted Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents ,25 Cases.

L.7 Financial1 - Year3

		Predicted Non-failed N	Predicted Failed F	Percent Corr
Observed				
Non-failed	N	14	4	77,78%
Failed	F	10	8	44,44%
			Overall	61,11%

Variable	B	S.E.	Wald	df	Sig	R	Exp
EBIT_SAL	-4,0177	3,2137	1,5630	1	,2112	,0000	,'
Constant	-,0125	,3472	,0013	1	,9712		

Observed Groups and Predicted Probabilities



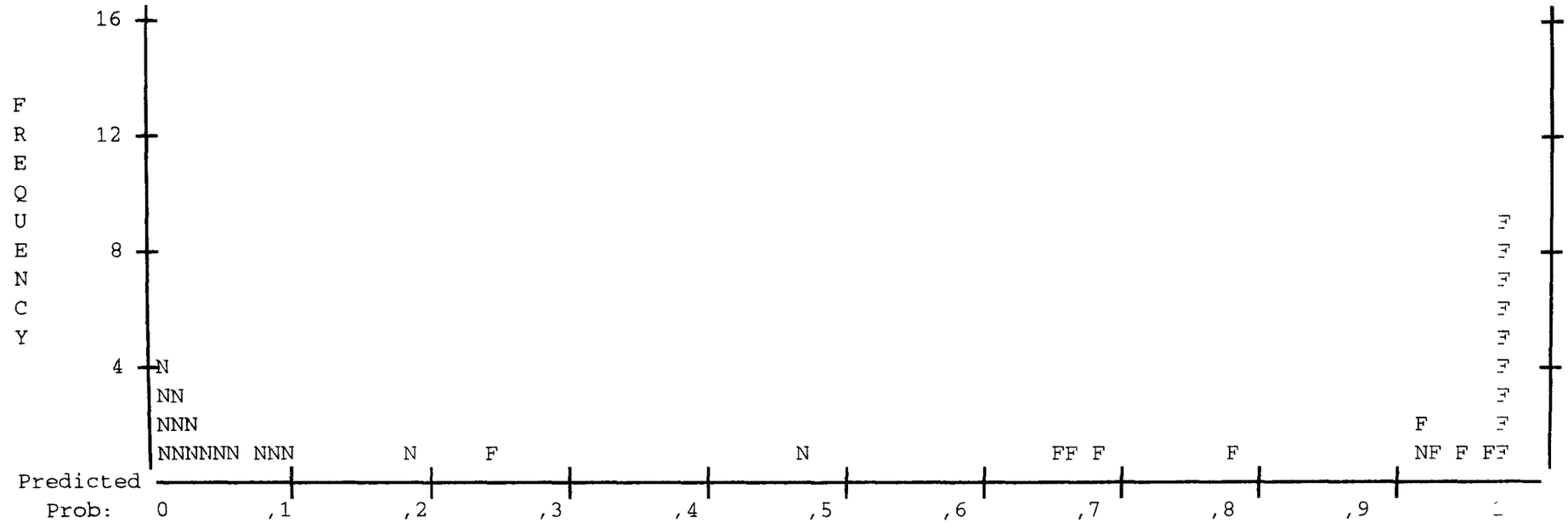
L.8 Financial2 - Year1

		Non-failed N	Failed F	Percent Corr
Observed				
Non-failed	N	17	1	94,44%
Failed	F	1	17	94,44%
			Overall	94,44%

Variable	B	S.E.	Wald	df	Sig	R	Exp
REVEX	-13,8773	8,7851	2,4953	1	,1142	-,0996	,'
ADV_FIXE	-8,7176	4,3634	3,9915	1	,0457	-,1998	,'
TOTAL_DE	21,4537	10,5016	4,1734	1	,0411	,2087	2,08
LONG_TER	-22,4908	12,6819	3,1451	1	,0762	-,1515	,'
Constant	10,7039	9,6306	1,2353	1	,2664		

	Constant	REVEX	ADV_FIXE	TOTAL_DE	LONG_
Constant	1,00000	-,95434	-,04028	-,16346	,03
REVEX	-,95434	1,00000	,06752	,05039	-,01
ADV_FIXE	-,04028	,06752	1,00000	-,88179	,88
TOTAL_DE	-,16346	,05039	-,88179	1,00000	-,93
LONG_TER	,03258	-,01028	,88453	-,93840	1,00

Observed Groups and Predicted Probabilities


FREQUENCY
16
12
8
4
N
NN
NNN
NNNNNN NNN
N
F
N
FF F
F
F
NF F FF
Predicted Prob:
0
,1
,2
,3
,4
,5
,6
,7
,8
,9
Group:
NNNNN

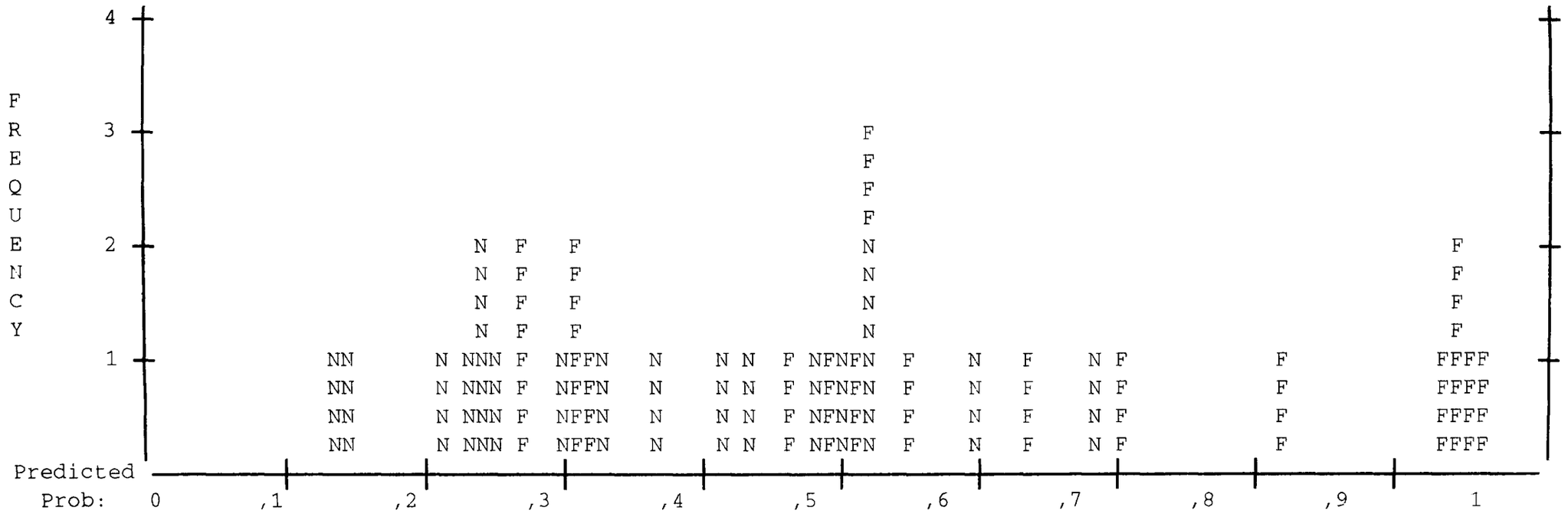
L.9 Financial2 - Year2

		Predicted		
		Non-failed	Failed	Percent Corr
		N	F	
Observed				
Non-failed	N	13	5	72,22%
Failed	F	6	12	66,67%
			Overall	69,44%

Variable	B	S.E.	Wald	df	Sig	R	Ex
REVEX	-3,2898	6,3718	,2292	1	,6321	,0000	,
ADV_FIXE	-,0747	,5136	,0212	1	,8843	,0000	,
TOTAL_DE	4,8552	3,3692	2,0766	1	,1496	,0392	128,
LONG_TER	-3,8757	3,2467	1,4250	1	,2326	,0000	,
Constant	1,3234	7,7718	,0290	1	,8648		

	Constant	REVEX	ADV_FIXE	TOTAL_DE	LONG_
Constant	1,00000	-,98743	,29020	-,61432	,34
REVEX	-,98743	1,00000	-,27902	,53128	-,32
ADV_FIXE	,29020	-,27902	1,00000	-,53426	,51
TOTAL_DE	-,61432	,53128	-,53426	1,00000	-,83
LONG_TER	,34755	-,32329	,51478	-,83617	1,00

Observed Groups and Predicted Probabilities

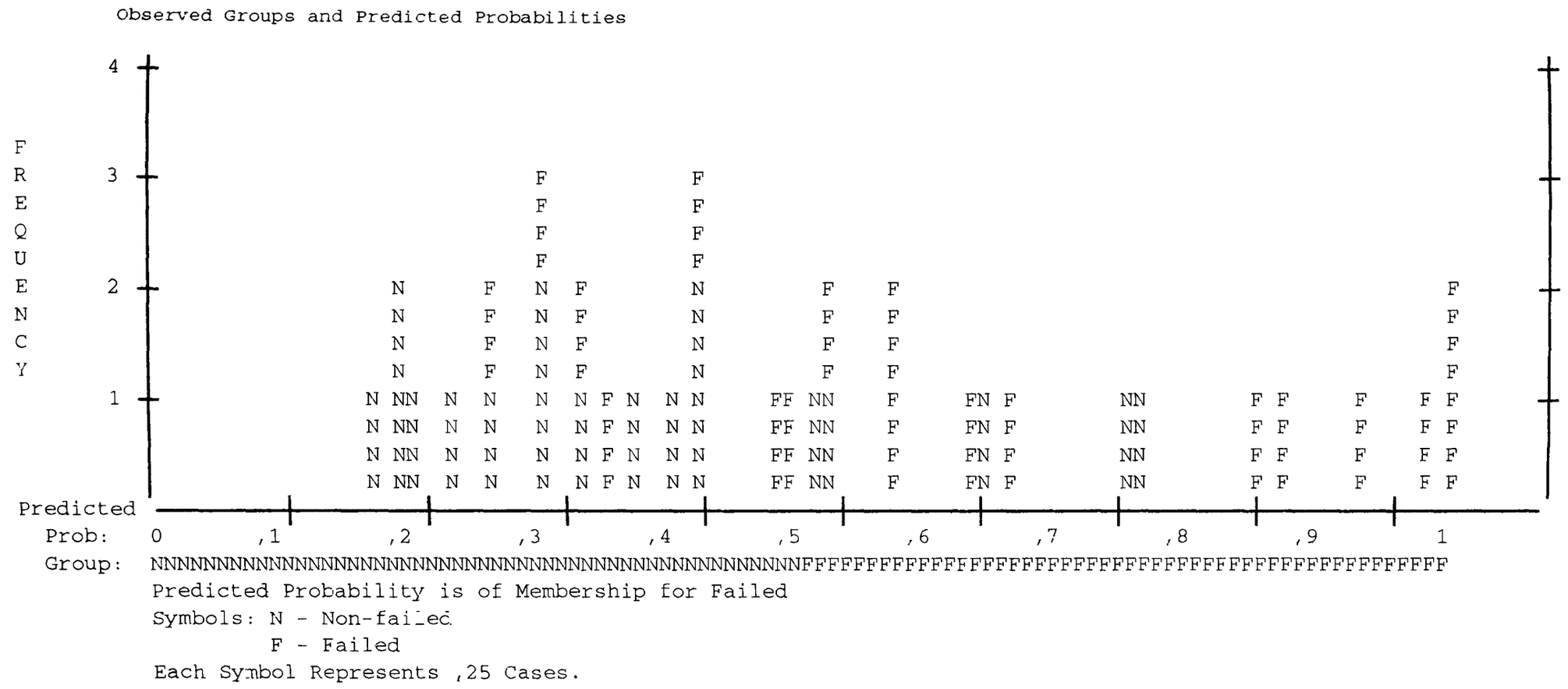

FREQUENCY
4
3
2
1
F
N F F
N F F
N F F
N F F
NN N NNN F NFFN N N N F NFNFN F N F N F F FFFF
Predicted Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: NNNN

L.10 Financial2 - Year3

		Predicted		
		Non-failed	Failed	Percent Corr
		N	F	
Observed				
Non-failed	N	13	5	72,22%
Failed	F	7	11	61,11%
			Overall	66,67%

Variable	B	S.E.	Wald	df	Sig	R	Exp
REVEX	2,5342	4,6218	,3007	1	,5835	,0000	12,'
ADV_FIXE	-2,1062	1,0522	4,0071	1	,0453	-,2005	,1
TOTAL_DE	11,6443	5,2592	4,9023	1	,0268	,2412	1140
LONG_TER	-11,8192	5,9560	3,9379	1	,0472	-,1971	,'
Constant	-4,5059	5,3161	,7184	1	,3967		

	Constant	REVEX	ADV_FIXE	TOTAL_DE	LONG_'
Constant	1,00000	-,97688	,32490	-,46709	,30
REVEX	-,97688	1,00000	-,30409	,38438	-,27
ADV_FIXE	,32490	-,30409	1,00000	-,89134	,91
TOTAL_DE	-,46709	,38438	-,89184	1,00000	-,94
LONG_TER	,30598	-,27619	,91851	-,94330	1,00


Observed Groups and Predicted Probabilities
FREQUENCY
4
3
2
1
Predicted
Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents ,25 Cases.

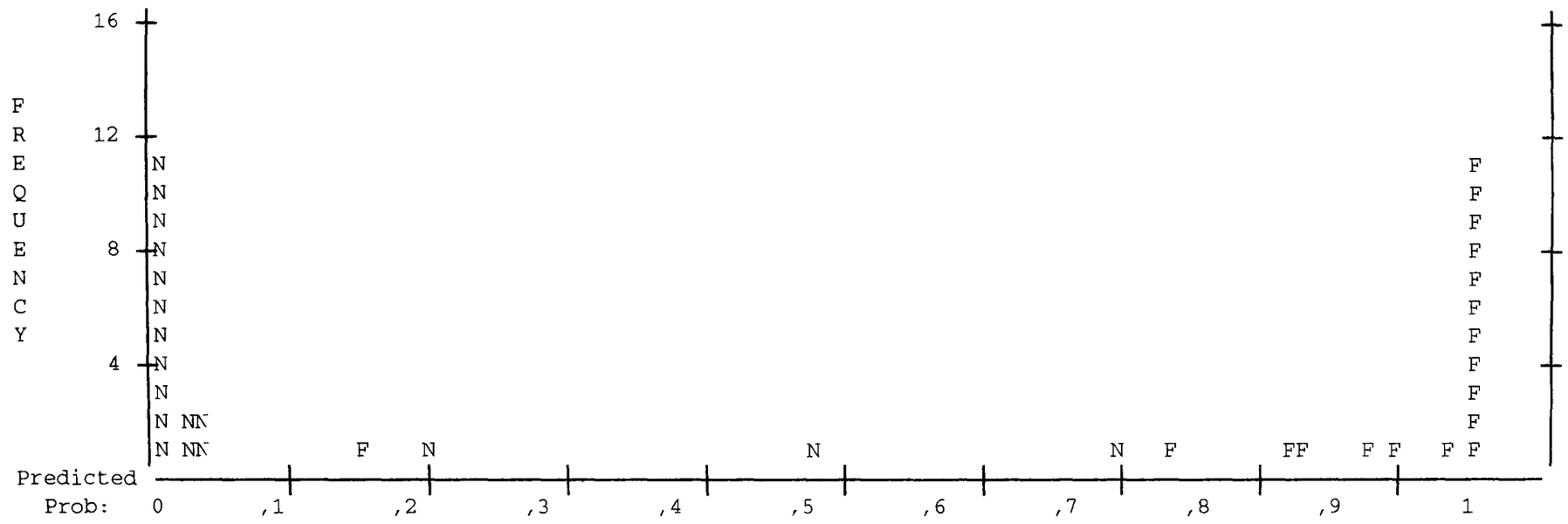
L.11 Mixed1 - Year1

		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Cbserved				
Non-failed	N	17	1	94,44%
Failed	F	1	17	94,44%
			Overall	94,44%

Variable	B	S.E.	Wald	df	Sig	R	Ex
CPERATIN	-1223,04	533,1514	5,2623	1	,0218	-,2557	,'
MAINTENA	-310,362	213,6459	2,1103	1	,1463	-,0470	,'
Constant	1,8685	1,2991	2,0687	1	,1504		

	Constant	OPERATIN	MAINTEN
Constant	1,00000	-,44408	-,7716
CPERATIN	-,44408	1,00000	,5306
MAINTENA	-,77164	,53067	1,000C

Observed Groups and Predicted Probabilities



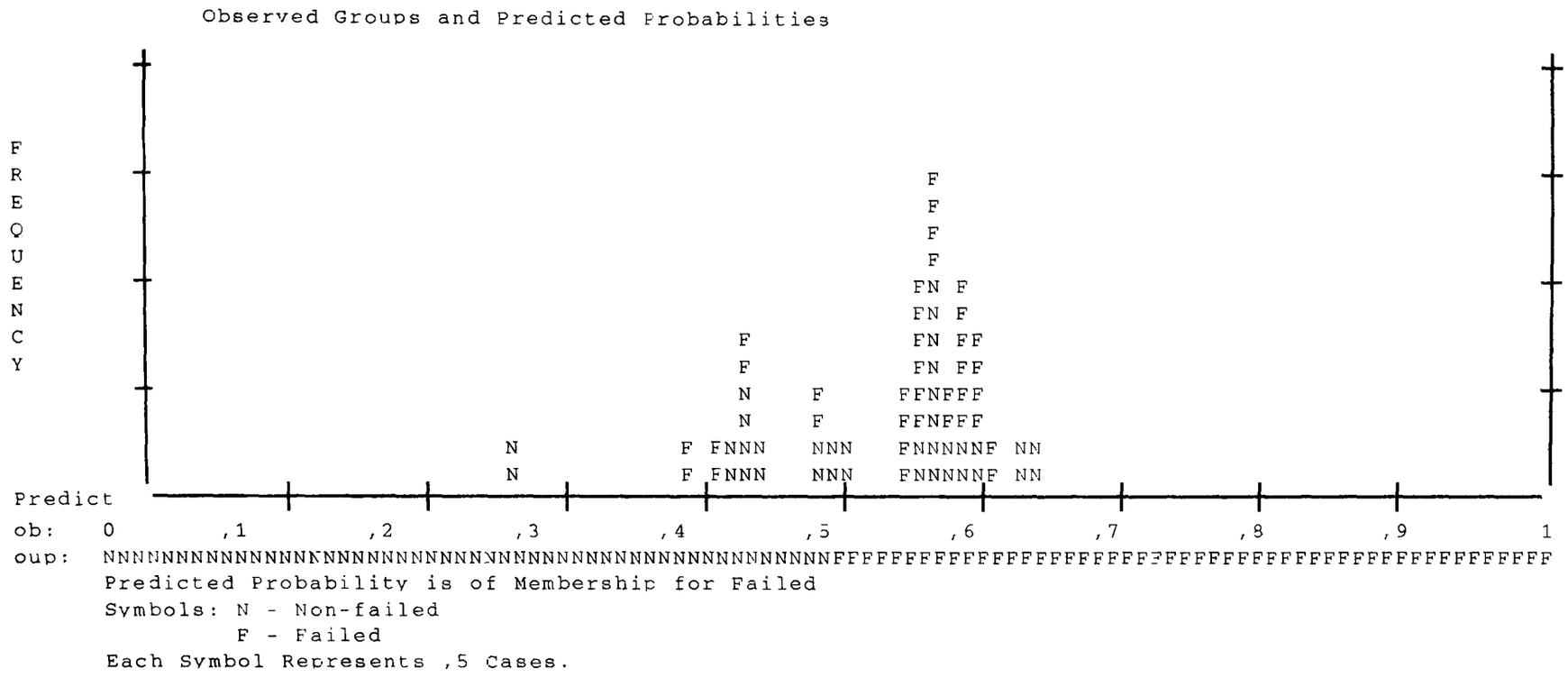
Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents 1 Case.

L.12 Mixed1 - Year2

Observed		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Non-failed	N	8	10	44,44%
Failed	F	4	14	77,78%
			Overall	61,11%

Variable	B	S.E.	Wald	df	Sig	R	Ex
CPERATIN	-3,2E-06	5,258E-06	,3658	1	,5453	,0000	1,
MAINTENA	-31,5307	47,5245	,4402	1	,5070	,0000	,
Constant	,7216	,9019	,6402	1	,4237		

	Constant	OPERATIN	MAINTEN
Constant	1,00000	-,80632	-,4545
CPERATIN	-,80632	1,00000	-,0045
MAINTENA	-,45457	-,00452	1,0000


Observed Groups and Predicted Probabilities
FREQUENCY
Predict
ob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
oup:
Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents ,5 Cases.

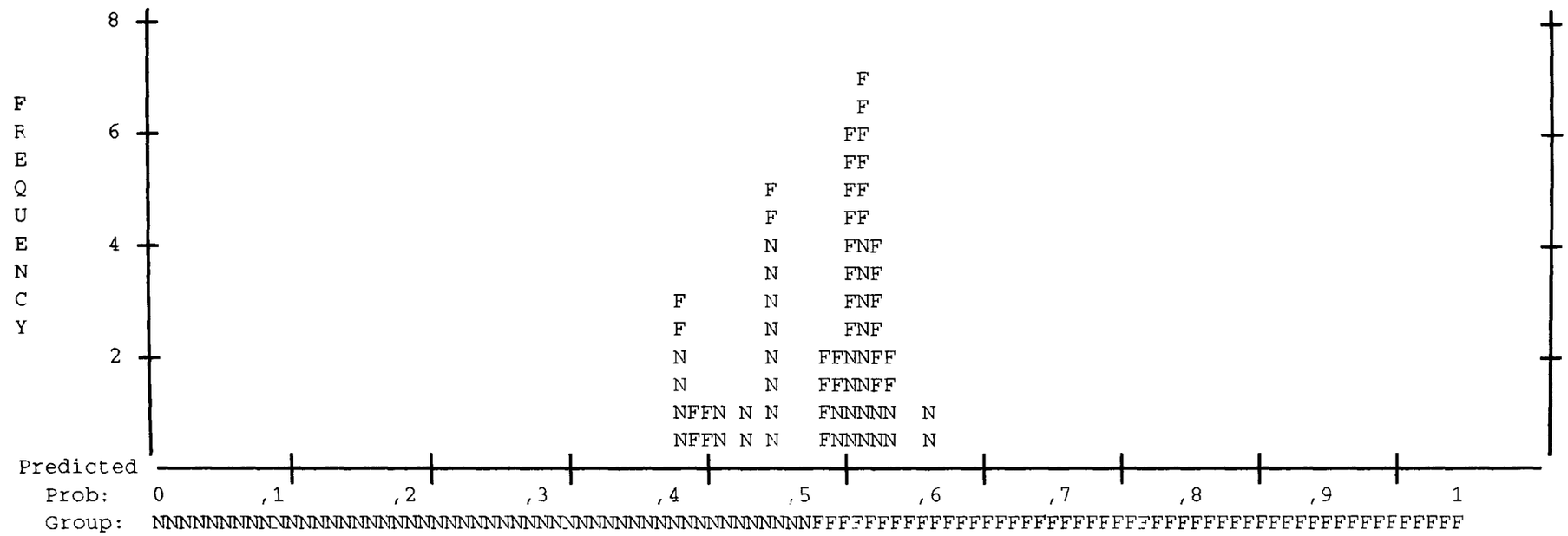
L.13 Mixed1 - Year3

Observed		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Non-failed	N	8	10	44,44%
Failed	F	4	14	77,78%
			Overall	61,11%

Variable	B	S.E.	Wald	df	Sig	R	Ex
MAINTENA	-23,5084	45,9862	,2613	1	,6092	,0000	,'
CPERATIN	-1,8E-06	4,945E-06	,1275	1	,7211	,0000	1,'
Constant	,4535	,8608	,2775	1	,5983		

	Constant	MAINTENA	OPERATI
Constant	1,00000	-,47576	-,7881
MAINTENA	-,47576	1,00000	-,0012
CPERATIN	-,78810	-,00126	1,000C

Observed Groups and Predicted Probabilities



Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents ,5 Cases.

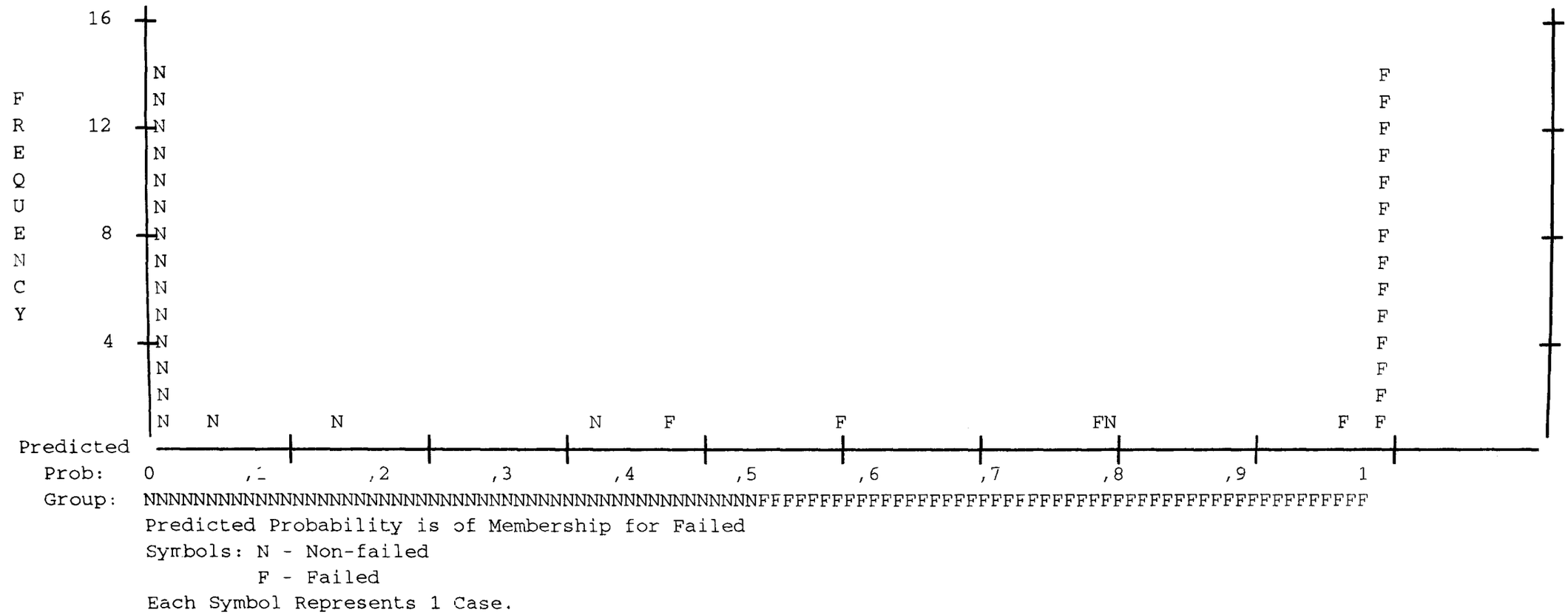
L.14 Mixed2 - Year1

Observed		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Non-failed	N	17	1	94,44%
Failed	F	1	17	94,44%
			Overall	94,44%

Variable	B	S.E.	Wald	df	Sig	R	Exp
CPERATIN	-2053,89	1597,0689	1,6539	1	,1984	,0000	,'
ASK_$101	5,40E-05	4,369E-05	1,5254	1	,2168	,0000	1,'
TOT._REV	-,0406	,0286	2,0153	1	,1557	-,0175	,'
Constant	-4,1067	5,0671	,6568	1	,4177		

	Constant	OPERATIN	ASK_$101	TOT._R
Constant	1,00000	,84257	-,91303	,288
CPERATIN	,84257	1,00000	-,95745	,689
ASK_$101	-,91303	-,95745	1,00000	-,628
TOT._REV	,28828	,68934	-,62826	1,000

Observed Groups and Predicted Probabilities



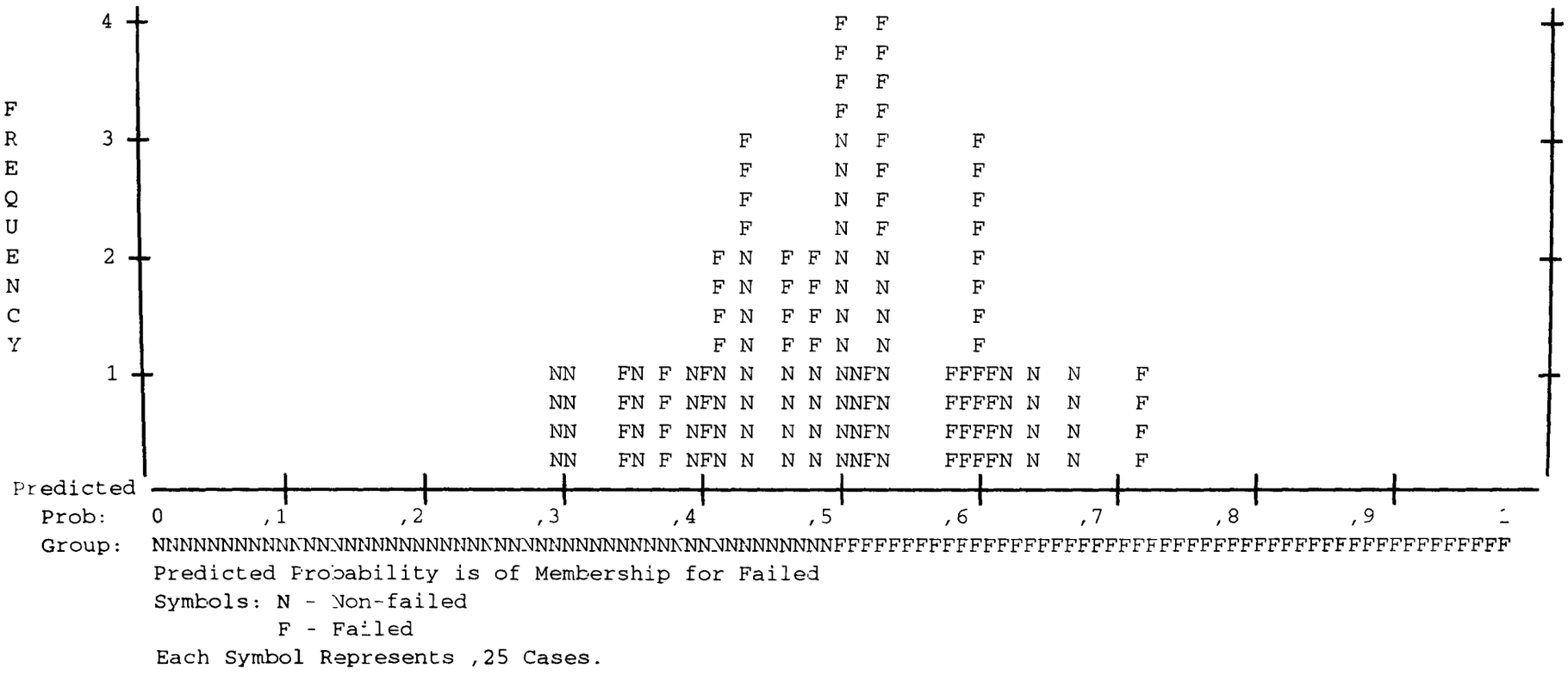
L.15 Mixed2 - Year2

		Predicted Non-failed N	Predicted Failed F	Percent Corr
Cbserved				
Non-failed	N	9	9	50,00%
Failed	F	7	11	61,11%
			Overall	55,56%

CPERATIN	-7,5E-06	7,883E-06	,9114	1	,3397	,0000
ASK_$101	4,74E-05	5,044E-05	,8812	1	,3479	,0000
TOTAL_RE	,0056	,0076	,5455	1	,4602	,0000
Constant	-,3986	1,2155	,1075	1	,7430	

	Constant	OPERATIN	ASK_$101	TOTAL_
Constant	1,00000	-,21812	-,75971	-,214
CPERATIN	-,21812	1,00000	-,26707	-,764
ASK_$101	-,75971	-,26707	1,00000	,358
TOTAL_RE	-,21423	-,76433	,35882	1,000

Observed Groups and Predicted Probabilities


FREQUENCY
4
3
2
1
F F
F F
F F
F F
F N F F
F N F F
F N F F
F N F F
F N F F N N F
F N F F N N F
F N F F N N F
F N F F N N F
NN FN F NFN N N N NNFN FFFFN N N F
NN FN F NFN N N N NNFN FFFFN N N F
NN FN F NFN N N N NNFN FFFFN N N F
NN FN F NFN N N N NNFN FFFFN N N F
Predicted Prob:
0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group:
NNNN

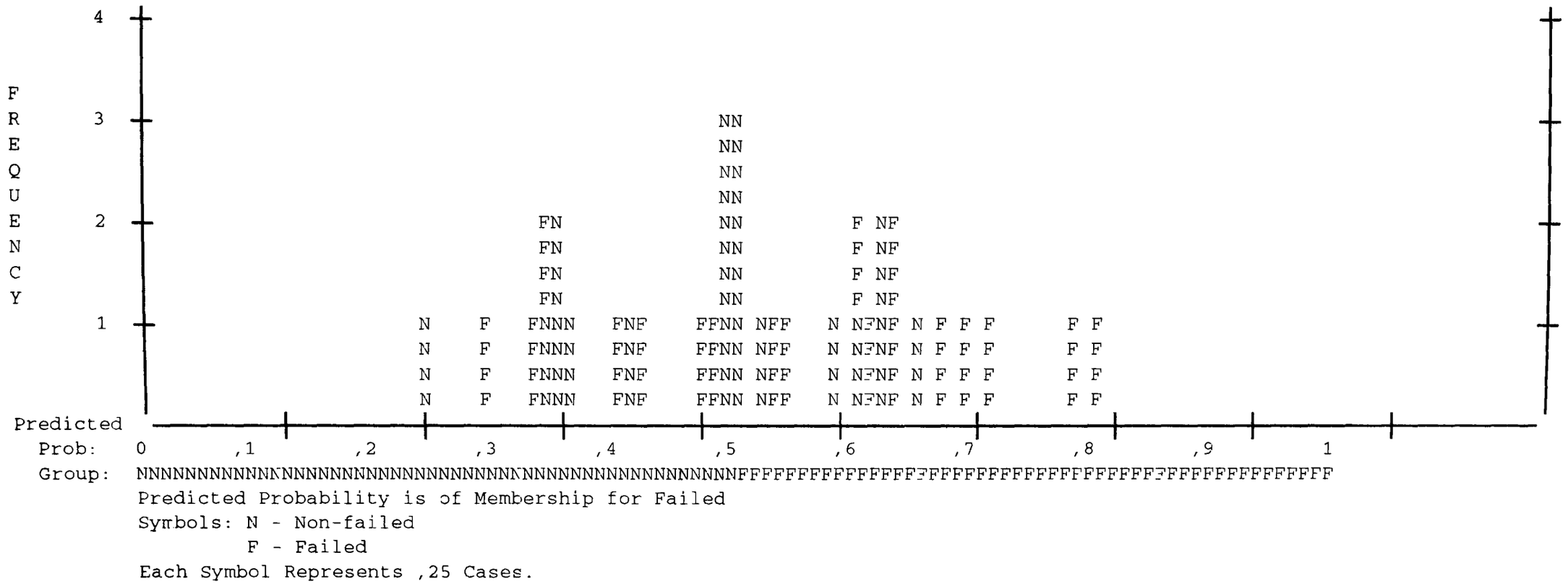
L.16 Mixed2 - Year3

		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Observed				
Non-failed	N	12	6	66,67%
Failed	F	7	11	61,11%
			Overall	63,89%

Variable	B	S.E.	Wald	df	Sig	R	Exp
CPERATIN	-4,1E-06	5,762E-06	,5023	1	,4785	,0000	1,0
ASK_$101	6,55E-05	4,803E-05	1,8618	1	,1724	,0000	1,0
TOTAL_RE	,0062	,0056	1,2202	1	,2693	,0000	1,0
Constant	-1,2543	1,2645	,9840	1	,3212		

	Constant	OPERATIN	ASK_$101	TOTAL_
Constant	1,00000	-,37214	-,77314	-,354
CPERATIN	-,37214	1,00000	-,07685	-,452
ASK_$101	-,77314	-,07685	1,00000	,286
TOTAL_RE	-,35443	-,45237	,28639	1,000

Observed Groups and Predicted Probabilities



Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents ,25 Cases.

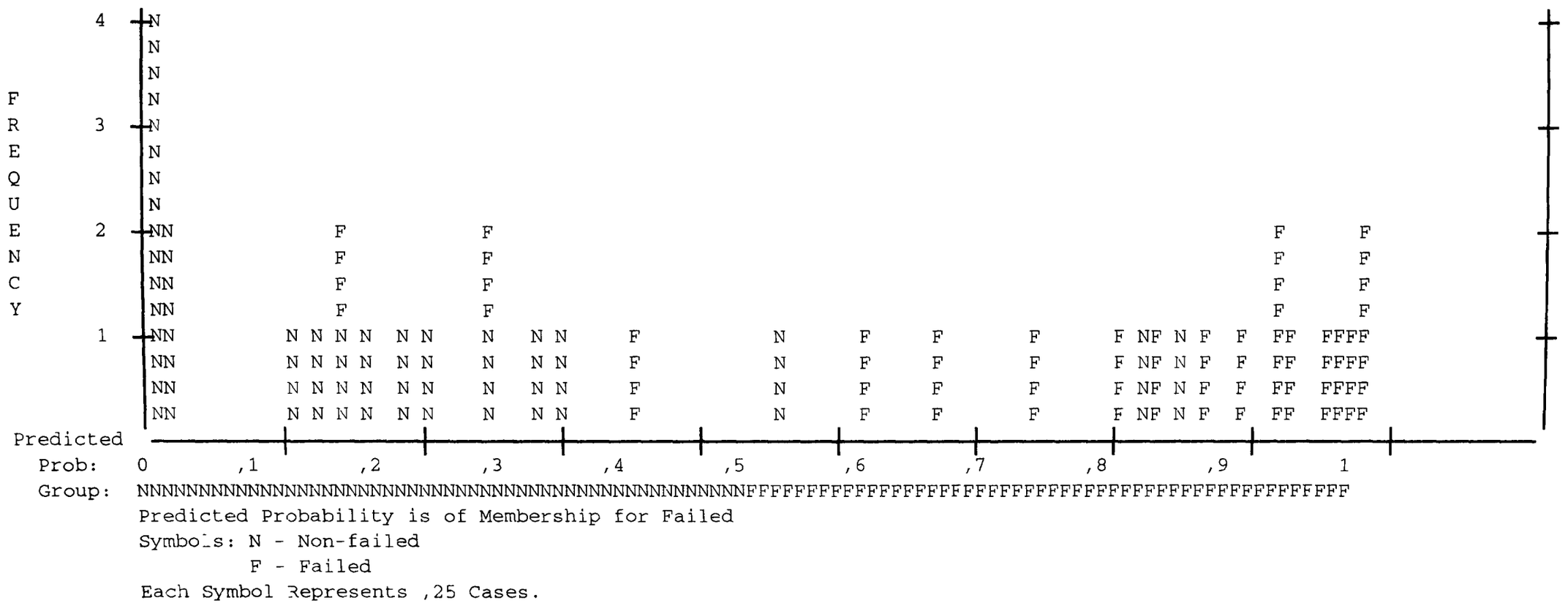
L.17 Non-financial - Year1

		Predicted		
		Non-failed	Failed	Percent Corr
		N	F	
Observed				
Non-failed	N	15	3	83,33%
Failed	F	3	15	83,33%
			Overall	83,33%

Variable	B	S.E.	Wald	df	Sig	R	Exp
AVERAGE1	-,0396	,0202	3,3574	1	,0495	-,1929	,9
AIRCRAFT	-,3580	,1424	6,3216	1	,0119	-,2943	,6
DISTANCE	-,0231	,0142	2,6319	1	,1047	-,1125	,9
AIRCRAF1	,2345	,1137	4,2559	1	,0391	,2126	1,2
AVERAGE3	,0020	,0008	5,9890	1	,0144	,2827	1,0
LOAD_FAC	-20,0956	10,1093	3,9515	1	,0468	-,1977	,0
@_NON_SC	-12,9935	6,8189	3,6309	1	,0567	-,1808	,0
CHANGE_2	-9,1595	4,9910	3,3679	1	,0665	-,1656	,0
Constant	30,9817	12,6308	6,0166	1	,0142		

	Constant	AVERAGE1	AIRCRAFT	DISTANCE	AIRCRAF1	AVERAGE3	LOAD_FAC	@_NON_SC	C
Constant	1,00000	-,34847	-,91640	-,80862	,62771	,65627	-,65880	-,45115	
AVERAGE1	-,34847	1,00000	,40292	,02598	-,06819	-,63464	,18543	,66205	
AIRCRAFT	-,91640	,40292	1,00000	,81823	-,80392	-,72486	,51021	,59679	
DISTANCE	-,80862	,02598	,81823	1,00000	-,72887	-,49547	,20896	,24233	
AIRCRAF1	,62771	-,06819	-,80392	-,72887	1,00000	,64710	-,40630	-,43960	
AVERAGE3	,65627	-,63464	-,72486	-,49547	,64710	1,00000	-,48403	-,80833	
LOAD_FAC	-,65880	,18543	,51021	,20896	-,40630	-,48403	1,00000	,31159	
@_NON_SC	-,45115	,66205	,59679	,24233	-,43960	-,80833	,31159	1,00000	
CHANGE_2	-,52619	,65456	,62993	,30998	-,41724	-,66903	,38184	,69824	

Observed Groups and Predicted Probabilities

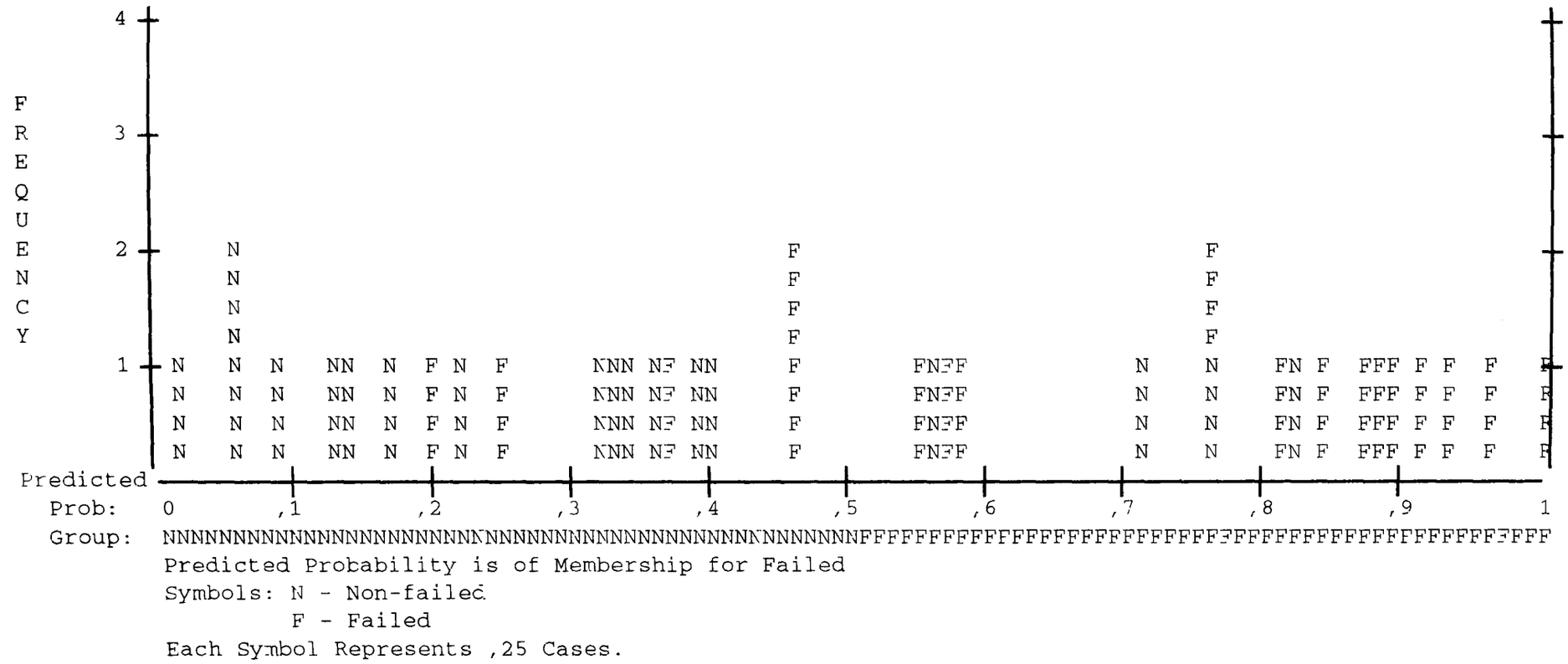

FREQUENCY
4
3
2
1
Predicted
Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNFFF

L.19 Non-financial - Year2

		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Observed: Non-failed	N	14	4	77,73%
Observed: Failed	F	5	13	72,22%
			Overall	75,00%

Variable	B	S.E.	Wald	df	Sig	R	Exp
AVERAGE1	,0043	,0156	,0767	1	,7818	,0000	1,0
AIRCRAFT	-,1456	,0599	5,9101	1	,0151	-,2799	,8
DISTANCE	-,0086	,0088	,9597	1	,3273	,0000	,9
AIRCRAF1	,1419	,0771	3,3888	1	,0656	,1668	1,1
AVERAGE3	,0003	,0007	,1811	1	,6704	,0000	1,0
LOAD_FAC	-8,1492	7,3545	1,2278	1	,2678	,0000	,0
@_NON_SC	-1,4555	4,8353	,0906	1	,7634	,0000	,2
CHANGE_2	4,5861	3,7139	1,5248	1	,2169	,0000	98,4
Constant	9,8932	6,8351	2,0950	1	,1478		

	Constant	AVERAGE1	AIRCRAFT	DISTANCE	AIRCRAF1	AVERAGE3	LOAD_FAC	@_NON_SC	C
Constant	1,00000	-,06544	-,69171	-,77318	,16637	,27391	-,45970	,12942	
AVERAGE1	-,06544	1,00000	-,00370	-,17270	,14977	-,62980	-,03705	,06564	
AIRCRAFT	-,69171	-,00370	1,00000	,63776	-,70610	-,19489	,32111	-,12345	
DISTANCE	-,77318	-,17270	,63776	1,00000	-,21567	-,07389	-,06496	-,05850	
AIRCRAF1	,16637	,14977	-,70610	-,21567	1,00000	,17418	-,38684	,17079	
AVERAGE3	,27391	-,62980	-,19489	-,07389	,17418	1,00000	-,30020	-,44905	
LOAD_FAC	-,45970	-,03705	,32111	-,06496	-,38684	-,30020	1,00000	-,18814	
@_NON_SC	,12942	,06564	-,12345	-,05850	,17079	-,44905	-,18814	1,00000	
CHANGE_2	-,13835	,31920	-,04767	,13671	,03124	-,33017	,09430	,11384	


Observed Groups and Predicted Probabilities
FREQUENCY
4
3
2
1
Predicted
Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group:
Predicted Probability is of Membership for Failed
Symbols: N - Non-failed
F - Failed
Each Symbol Represents ,25 Cases.

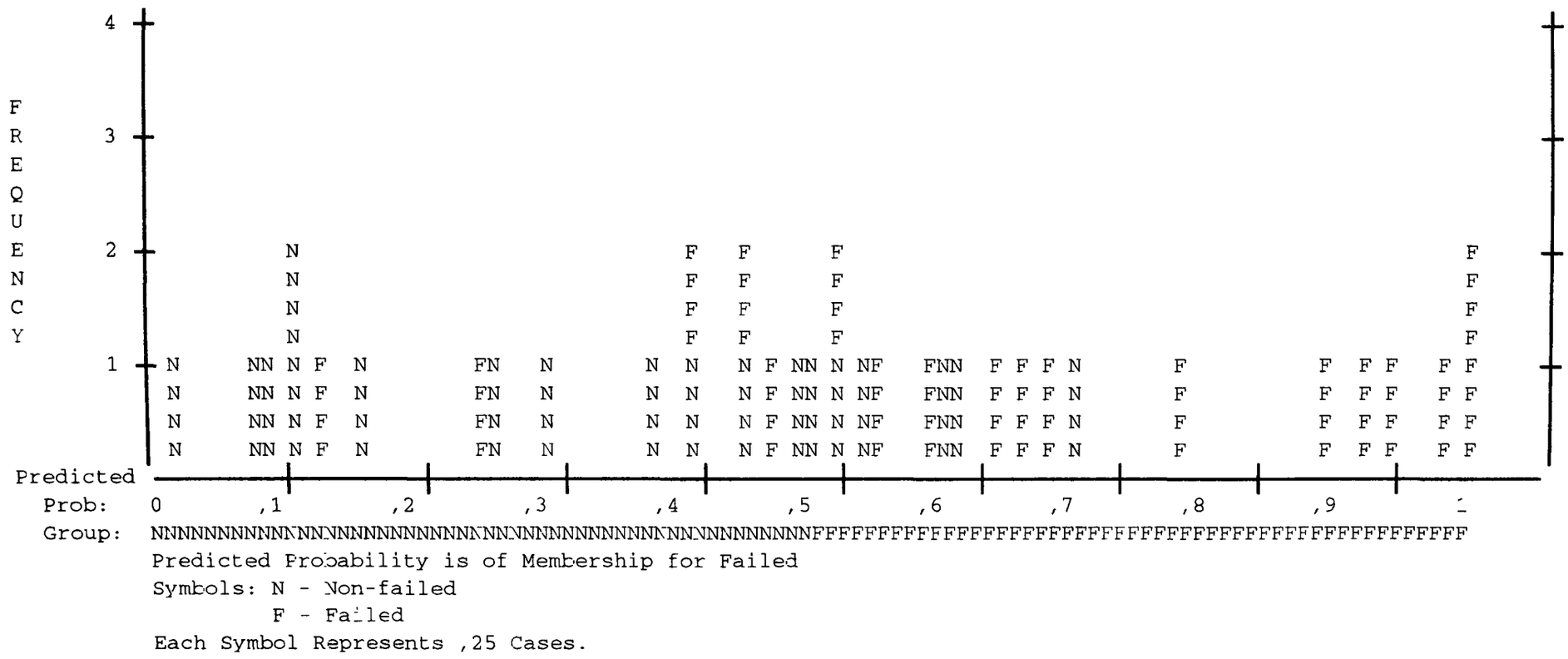
L.20 Non-financial1 - Year3

		Predicted: Non-failed (N)	Predicted: Failed (F)	Percent Corr
Observed				
Non-failed	N	13	5	72,22%
Failed	F	5	13	72,22%
			Overall	72,22%

Variable	B	S.E.	Wald	df	Sig	R	Exp
AVERAGE1	-,0143	,0135	1,1258	1	,2887	,0000	,9
AIRCRAFT	-,1034	,0522	3,9203	1	,0477	-,1962	,9
DISTANCE	,0002	,0075	,0006	1	,9798	,0000	1,0
AIRCRAF1	,1297	,0660	3,8680	1	,0492	,1935	1,1
AVERAGE3	,0008	,0006	1,8221	1	,1771	,0000	1,0
LOAD_FAC	-14,0717	9,5404	2,1755	1	,1402	-,0593	,0
@_NON_SC	1,1717	4,0835	,0823	1	,7742	,0000	3,2
CHANGE_2	2,7637	2,7515	1,0089	1	,3152	,0000	15,8
Constant	7,9386	7,3392	1,1700	1	,2794		

	Constant	AVERAGE1	AIRCRAFT	DISTANCE	AIRCRAF1	AVERAGE3	LOAD_FAC	@_NON_SC	CHANGE_2
Constant	1,00000	-,20977	-,73225	-,64177	,10256	,39574	-,60126	,32161	-,24899
AVERAGE1	-,20977	1,00000	,21133	,00490	,04463	-,62498	-,00215	-,21669	-,02139
AIRCRAFT	-,73225	,21133	1,00000	,48587	-,59458	-,33096	,47465	-,17891	,05215
DISTANCE	-,64177	,00490	,48587	1,00000	,17301	-,17939	-,15042	-,07845	,37664
AIRCRAF1	,10256	,04463	-,59458	,17301	1,00000	,16539	-,51581	,10237	,41183
AVERAGE3	,39574	-,62498	-,33096	-,17939	,16539	1,00000	-,27933	-,11264	-,01817
LOAD_FAC	-,60126	-,00215	,47465	-,15042	-,51581	-,27933	1,00000	-,32168	-,15573
@_NON_SC	,32161	-,21669	-,17891	-,07845	,10237	-,11264	-,32168	1,00000	,02111
CHANGE_2	-,24899	-,02139	,05215	,37664	,41183	-,01817	-,15573	,02111	1,00000

Observed Groups and Predicted Probabilities


FREQUENCY
4
3
2
1
Predicted Prob: 0 ,1 ,2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 1
Group: NNNN

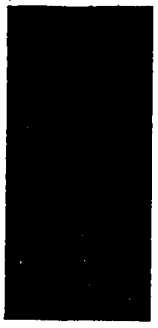
Appendix-M Organisational Life-cycleTheories

Table M-1 Overview of Organisational Life-cycle Theories

Summary Model	*Downs: Motivation for growth(1967)*	*Kimberly: Internal social control, structure and environmental relations(1979)*	*Adizes: Major organisational activities(1979)*	*Scott: Strategy and structure(1971)*
1. Entrepreneurial Stage - Marshalling of resources - Multiple and diverse ideas - Entrepreneurial activities - Little planning and co-ordination - Formation of a 'niche' - 'Prime mover' has power	1. Struggle for autonomy stage - Legitimise the function to the external environment - Obtain autonomy from parent or competing bureau - Stabilise resources - Achieve survival threshold	First Stage - Marshalling of resources - Creation of an ideology	Courtship Stage - Founders are dreaming up 'what we might do' - Entrepreneurial activities	Stage 1 - One man rule - Paternalistic reward system - Subjective evaluation criteria - No formal structure
2. Collective Stage - Informal communication and structure - Sense of collectivity - Long hours spent - Sense of mission - Innovation continues - High commitment	2. Rapid growth stage - Innovators and climbers have control - Emphasis on innovation and expansion - Occurrence of an 'age lump' in membership	Second stage - Obtaining support for the external environment - Choice of a 'prime mover' - Staffing of the organisation - Frequent, discrete decisions are made	Infant Organisation Stage - Emphasis on production - Time pressures keenly felt - No tradition - Few meetings - Little planning	Stage 2 - Functional specialisation - Institutionalised procedures - Systematic reward system - Impersonal evaluation - Formalised structure
3. Formalization & Control Stage - Formalization or rules - Stable structure - Emphasis on efficiency and maintenance - Conservatism - Institutionalised procedures	3. Deceleration Stage - Increased size and complexity causes co-ordination problems - Innovation is de-emphasised - Smoothness and predictability are emphasised - 'Conservers' have control - Formalised and elaborate role systems - Reduced flexibility	Third stage - Formation of identity Sense of collectivity of family - High member commitment and involvement in the organisation - Pursuit of organisational mission - Postponing individual need fulfilment temporarily	Go-go Organisation Stage - Rapid expansion - Personalised leadership - Some planning - Fast, frequent, intuitive decision making	Stage 3 - Diversified product markets - Search for new products and growth opportunities - Semi-autonomous divisionalized structure
4. Elaboration of structure stage - Elaboration of structure - Decentralisation - Domain expansion - Adaptation - Renewal		Fourth Stage - Formalised structure - Policies and rules set up - Internal organisational competition - Stabilised external relations - Conservative trend - High personal investment questioned	Adolescent Organisation Stage - Planning and co-ordination are important - Administrative activities increase at the expense of entrepreneurial activities and production - Stability and conservatism - Formalised rules and policies	
			Prime Organisation Stage - Emphasis on efficiency - Increasing loss of touch with the environment - Thick organisation boundaries - Aspirations remain stable, no desire to grow or change - Stability and predictability are valued	
			Maturity Stage - Paternalistic, comfortable organisational climate - Low emphasis on production - Formalised relationships - Little innovation	

Source: **As in**: **Cameron, Kim S., Whetten, David A.**, Models of the Organisational Life Cycle: Applications to Higher Education, Review of Higher Education, Vol. 6, 1983, pp. 53-54.

Appendix-N Sample Questionnaires and Cover Letters



Cranfield

College of Aeronautics
Department of Air Transport
Cranfield, Bedfordshire MK43 OAL
England

NEW-ENTRANT AIRLINES' SUCCESS AND FAILURE FACTORS

Questionnaire

Established new-entrants

Cranfield

This questionnaire is a part of a larger study to identify the success and failure factors of new-entrant airlines. Please note that the definition of a new-entrant airline for the purpose of this project is: "a domestic or international airline established after deregulation/liberalisation of a domestic market or bilateral route; or a regional carrier that expanded its scope of operations considerable after the regulatory change."

Some of the questions may be in an area which is out of your direct responsibility, please do not omit these questions unless you have no idea at all about their subject.

Please be assured that **all information will be treated in confidence** and the results will be presented in the aggregated form.

---

1. Please indicate (√) if you agree or disagree with the statements in relation to your airline today.

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
Our organisational structure is decentralised.					
Our financial control system is efficient.					
The airline has a vision of the future shared by all the employees.					
We surround ourselves with staff who promotes different orientations and points of view.					
Group consensus is the usual way we make decisions.					
The airline's success is largely dependent on factors out of its control.					
The number of serious problems we are faced with increases constantly.					
Our staff is encouraged to have open discussion about the airline's problems.					
We do detailed analysis before taking any major decision.					
We make changes in our service quite frequently.					
We usually have enough resources to plan for the future.					
Our customer loyalty is strong.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We fulfil our customers' needs well.					
We act immediately upon customer complaints.					
Our marketing performance is good.					
Our long term aims and objectives are easily achievable.					
Our marketing is aggressive.					
We usually receive many useful suggestions from our employees.					
We are more efficient than most of our competitors.					
We try to avoid head to head competition with our larger competitors.					
Our long term aims and objectives guide our business decisions.					
Our airline is flexible enough to respond immediately to major opportunities.					
We are pleased with the performance of our distribution outlets.					
We are innovators in customer service compared to our competitors.					
Lack of capital will not limit our growth.					
Everyone in our airline understands our long term aims and objectives.					
We are constantly identifying threats and opportunities to our business.					
The improvement of the airline's market-share is our number one priority.					
We are rarely taken by surprise by our business environment.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We emphasise planning for the future.					
We grow by selling our services to more customers.					
We allocate major resources for diversification into other industries.					
We plan for and allocate sufficient resources to developing new markets.					
Long-term prospects in our primary markets are excellent.					
We have customer-oriented front-line people.					
Our service has a range of features that makes it distinctive.					
Quality is our major competitive advantage.					
Everyone in our airline understands how they can improve quality.					
We are effective in monitoring our customers' expectation of quality.					
Our internal social and political system support our business aims.					
We are good at changing our staff's beliefs and values.					
Our staff provide us with a competitive advantage.					
We have incentives for our staff that encourages extra commitment.					
We have all the information we need on our customers, markets and opportunities.					
Employees are rewarded for taking actions that benefit our customers.					
Our information system provides us with a clear competitive advantage.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We are constantly upgrading and improving our information system.					
We would create the same organisation structure as we have now, if given the opportunity.					
We make effective cash-flow forecasts.					
We are good at stimulating demand for our services.					
We are effective in monitoring important cost areas.					
Important information is communicated to employees to enable effective decision-making.					
The board of directors is highly involved in the airline's affairs.					
The atmosphere among employees is very good.					
Our information systems provide quick, accurate and relevant information.					

2. Indicate the **Importance** placed on the following factors at your airline in the **past,** at the **present** and as expected in the **future.** Use **up to 10** points for each factor, **per cell**. The most important factors receive ten (10), factors of least importance may receive one (1) and factors of no importance a zero (0).

Example

Staff factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future (1995 and onward)
Employees' motivation	8	10	10
Willingness to accept flexible job tasks	0	4	8

Please remember that you are rating the importance placed on each factor at your airline!

Environment factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future ('95 and onward)
Favourable attitude of travel agents			
Reduction of CRS bias affecting the airline			
Competitor analysis			
Influencing government policy on aviation			
Forecasting adverse effects of the economy on the airline			
Investors' attitudes towards the airline (investment bankers, stockholders, etc.)			

Cranfield

Please remember that you are rating the importance placed on each factor at your airline!

Information- and communication system factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future ('95 and onward)
Control systems (monitoring the work of the organisation)			
Logistics systems (linking of different parts of the organisation)			
Motivation systems (targets and objectives for staff involvement and motivation)			
Planning systems (integration of information to prepare business action plans)			
Yield management system			
Interdepartmental communication			
Market-intelligent information- and communication system			
Simplification of information- and communication systems			
Computer reservation system			
Operation factors			
Aircraft utilisation			
Acquisition of new aircraft			
Acquisition of airport slots			
Frequency in served markets			
Hub and spoke operations			
Long haul routes			
Quality of terminal space and ground facilities			
Matching of aircraft size with route requirement			
Interlining agreements			
Homogeneous aircraft fleet			
Operation on trunk routes			
Code sharing			
Freight operations			
Feeder airline agreements			
Management and organisation factors			
Delegation			
Company culture (shared attitudes, beliefs, norms)			
Union relations			
Employee relations			
Flexible job descriptions			
Job rotation			
Decentralised organisation structure			
Shared company vision (the future 'we' want)			
Management teams (interdepartmental teams)			
Operations without unionised staff (where possible)			
Management's external contacts (Government, etc.)			
Staff reduction			
Employees' autonomy to take decisions			
Company mission (Long-term aims and objectives)			
Employees' incentive program			
Business strategy			
Employees' productivity			
Managers' incentive program			

Cranfield

Please remember that you are rating the importance placed on each factor at your airline!

Marketing factors	**Past** (Prior to 1992)	**Present** ('92, '93, '94)	**Future** ('95 and onward)
Alliance with the incumbents			
Merger/acquisition to gain market share			
Diversification into other industries			
Frequent flyer programs			
Business passengers			
Market share			
Service quality			
Passenger load factors			
Price leadership in served markets			
Expansion into new markets			
Market research			
Media advertising			
Weight load factor			
Avoidance of price wars			
Brand image			
Commission overrides			
Promotion			
Distribution network			
Financial factors			
Cost control			
Cost reduction			
Increase margins			
Debt reduction			
Long-term rather than short-term profits			
Achieving critical mass (investment necessary before profits will be made)			
Turnover growth			
Reduction of labour costs			
Off balance-sheet financing of aircraft			
Fuel costs (fuel efficient aircraft, etc.)			
Please write down any factors which you feel are omitted above and rate them as appropriate in the spaces provided.			

3. How many board members does the airline have? ☐ → How many are outside directors? ☐

4. Does the company have a formal mission statement? ☐ Yes ☐ No

5. a. Do managers generally own shares in the airline? ☐ Yes ☐ No

b. If you own shares, please (√) according to your approximate share-holding? ☐ < 1% ☐ 1 - 2 % ☐ 3 - 4% ☐ 5 - 10 % ☐ 11-15% ☐ 16 - 20% ☐ 21-30% ☐ 31-40% ☐ 41-50% ☐ > 50%

Cranfield

6. How many years of formal education have you completed?

(For example, high school graduate equals 12 years) ☐ years of formal education.

7. If your formal education is more than 12 years, what is your field of specialisation?

(For example: BA degree in Social Sciences; MBA degree with concentration in finance.)

8. What is your age? ☐ years.

9. What management positions have you held?

Please (√) in the appropriate column below. If the airline grew from one size classification to another while you held the same position, then please mark in the column that indicates the airline's size just before you made your career move.

Place present position first and indicate if different positions are within the same company.	**Number of years in the position**	**Small regional** (< $10 m op. rev.)	**Large regional** ($10 - 100 m op. rev.)	**National** ($100 m - 1 bn op. rev.)	**Major** (> $1bn operating rev.)	**Other industry**

If you have any comments on this survey or on new-entrant airlines' success or failure, please feel free to use the spaces below or separate paper:

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_____

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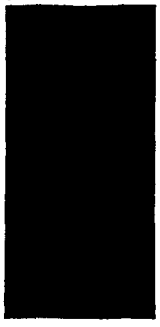
_____

I would like to thank you most sincerely for the time you have spent completing this survey.

6593



Cranfield

College of Aeronautics
Department of Air Transport
Cranfield, Bedfordshire MK43 OAL
England

NEW-ENTRANT AIRLINES' SUCCESS AND FAILURE FACTORS

Questionnaire

Industry analysts

Cranfield

This questionnaire is a part of a larger study to identify the success and failure factors of new-entrant airlines. Please note that the definition of a new-entrant airline for the purpose of this project is: "a domestic or international airline established after deregulation/liberalisation of a domestic market or bilateral route; or a regional carrier that expanded its scope of operations considerable after the regulatory change." Such carriers include: People Express, America West, Southwest and Virgin Atlantic, etc.

Please be assured that **all information will be treated in confidence** and the results will be presented in the aggregated form.

---

1. Indicate the importance of each of the following factors for new-entrant airlines in the **past**, at the **present** and as expected in the **future**. Use up to 10 points for each factor, per cell. The most important factors receive ten (10), factors of least importance may receive one (1) and factors of no importance a zero (0).

Example

Staff factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future (1995 and onward)
Employees' motivation	8	10	10
Willingness to accept flexible job tasks	0	4	8

Environment factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future ('95 and onward)
Favourable attitude of travel agents			
Reduction of CRS bias affecting the airline			
Competitor analysis			
Influencing government policy on aviation			
Forecasting adverse effects of the economy on the airline			
Investors' attitudes towards the airline (investment bankers, stockholders, etc.)			
Information- and communication system factors			
Control systems (monitoring the work of the organisation)			
Logistics systems (linking of different parts of the organisation)			
Motivation systems (targets and objectives for staff involvement and motivation)			
Planning systems (integration of information to prepare business action plans)			
Yield management system			
Interdepartmental communication			
Market-intelligent information- and communication system			
Simplification of information- and communication systems			
Computer reservation system			

Cranfield

Operation factors	**Past** (Prior to 1992)	**Present** ('92, '93, '94)	**Future** ('95 and onward)
Aircraft utilisation			
Acquisition of new aircraft			
Acquisition of airport slots			
Frequency in served markets			
Hub and spoke operations			
Long haul routes			
Quality of terminal space and ground facilities			
Matching of aircraft size with route requirement			
Interlining agreements			
Homogeneous aircraft fleet			
Operation on trunk routes			
Code sharing			
Freight operations			
Feeder airline agreements			
Management and organisation factors			
Delegation			
Company culture (shared attitudes, beliefs, norms)			
Union relations			
Employee relations			
Flexible job descriptions			
Job rotation			
Decentralised organisation structure			
Shared company vision (the future 'we' want)			
Management teams (interdepartmental teams)			
Operations without unionised staff (where possible)			
Management's external contacts (Government, etc.)			
Staff reduction			
Employees' autonomy to take decisions			
Company mission (Long-term aims and objectives)			
Employees' incentive program			
Business strategy			
Employees' productivity			
Managers' incentive program			
Marketing factors			
Alliance with the incumbents			
Merger/acquisition to gain market share			
Diversification into other industries			
Frequent flyer programs			
Business passengers			
Market share			
Service quality			
Passenger load factors			
Price leadership in served markets			
Marketing factors continue on next page....			

Cranfield

Marketing factors	**Past** (Prior to 1992)	**Present** ('92, '93, '94)	**Future** ('95 and onward)
Expansion into new markets			
Market research			
Media advertising			
Weight load factor			
Avoidance of price wars			
Brand image			
Commission overrides			
Promotion			
Distribution network			
Financial factors			
Cost control			
Cost reduction			
Increase margins			
Debt reduction			
Long-term rather than short-term profits			
Achieving critical mass (investment necessary before profits will be made)			
Turnover growth			
Reduction of labour costs			
Off balance-sheet financing of aircraft			
Fuel costs (fuel efficient aircraft, etc.)			
Please write down any factors which you feel are omitted and rate them as appropriate in the spaces provided.			

2. What is your age? [ ] years.

3. If you have any comments on this survey or on new-entrant airlines' success or failure, please feel free to use the spaces below or separate paper:

_____

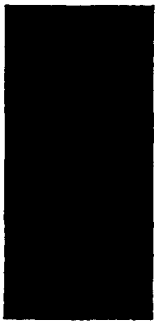
_____

_____

_____

I would like to thank you most sincerely for the time you have spent completing this survey.

6593



College of Aeronautics
Department of Air Transport
Cranfield, Bedfordshire MK43 OAL
England

NEW-ENTRANT AIRLINES' SUCCESS AND FAILURE FACTORS

Questionnaire

Failed new-entrants

Cranfield

This questionnaire is a part of a larger study to identify the success and failure factors of new-entrant airlines. Please note that the definition of a new-entrant airline for the purpose of this project is: "a domestic or international airline established after deregulation/liberalisation of a domestic market or bilateral route; or a regional carrier that expanded its scope of operations considerable after the regulatory change."

Some of the questions may be in an area which was out of your direct responsibility, please do not omit these questions unless you have no idea at all about their subject. Furthermore, do not rate the questions with the months immediately before failure in mind. Focus rather on the airline's life-cycle as a whole.

Please be assured that **all information will be treated in confidence** and the results will be presented in the aggregated form.

---

1. Please indicate (√) if you agree or disagree with the statements in relation to the airline.

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
Our organisational structure was decentralised.					
Our financial control system was efficient.					
The airline had a vision of the future shared by all the employees.					
We surrounded ourselves with staff who promoted different orientations and points of view.					
Group consensus was the usual way we made decisions.					
The airline's success was largely dependent on factors out of its control.					
The number of serious problems we were faced with increased constantly.					
Our staff was encouraged to have open discussion about the airline's problems.					
We did detailed analysis before taking any major decision.					
We made changes in our service quite frequently.					
We usually had enough resources to plan for the future.					
Our customer loyalty was strong.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We fulfilled our customers' needs well.					
We acted immediately upon customer complaints.					
Our marketing performance was good.					
Our long term aims and objectives were easily achievable.					
Our marketing was aggressive.					
We usually received many useful suggestions from our employees.					
We were more efficient than most of our competitors.					
We tried to avoid head to head competition with our larger competitors.					
Our long term aims and objectives guided our business decisions.					
Our airline was flexible enough to respond immediately to major opportunities.					
We were pleased with the performance of our distribution outlets.					
We were innovators in customer service compared to our competitors.					
Lack of capital did not limit our growth.					
Everyone in our airline understood our long term aims and objectives.					
We were constantly identifying threats and opportunities to our business.					
The improvement of the airline's market-share was our number one priority.					
We were rarely taken by surprise by our business environment.					

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	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We emphasised planning for the future.					
We grew by selling our services to more customers.					
We allocated major resources for diversification into other industries.					
We planned for and allocated sufficient resources to developing new markets.					
Long-term prospects in our primary markets were excellent.					
We had customer-oriented front-line people.					
Our service had a range of features that made it distinctive.					
Quality was our major competitive advantage.					
Everyone in our airline understood how they could improve quality.					
We were effective in monitoring our customers' expectation of quality.					
Our internal social and political system supported our business aims.					
We were good at changing our staff's beliefs and values.					
Our staff provided us with a competitive advantage.					
We had incentives for our staff that encouraged extra commitment.					
We had all the information we needed on our customers, markets and opportunities.					
Employees were rewarded for taking actions that benefited our customers.					
Our information system provided us with a clear competitive advantage.					

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	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We were constantly upgrading and improving our information system.					
We would create the same organisation structure as we had, if given the opportunity.					
We made effective cash-flow forecasts.					
We were good at stimulating demand for our services.					
We were effective in monitoring important cost areas.					
Important information was communicated to employees to enable effective decision-making.					
The board of directors was highly involved in the airline's affairs.					
The atmosphere among employees was very good.					
Our information systems provided quick, accurate and relevant information.					

2. Indicate the **Importance** placed on the following factors at your airline in the **past** and if the airline failed in 1992 or 1993 please fill in the column marked **present**. In the column marked **future** please give your expert view on what importance a new start-up airline should place on the factors. Use **up to 10** points for each factor, **per cell**. The most important factors receive ten (10), factors of least importance may receive one (1) and factors of no importance a zero (0).

Example

Staff factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future (1995 and onward)
Employees' motivation	8	10	10
Willingness to accept flexible job tasks	0	4	8

Environment factors	Past (Prior to 1992)	Present ('92, '93, '94)	Future ('95 and onward)
Favourable attitude of travel agents			
Reduction of CRS bias affecting the airline			
Competitor analysis			
Influencing government policy on aviation			
Forecasting adverse effects of the economy on the airline			
Investors' attitudes towards the airline (Investment bankers, stockholders, etc.)			

Cranfield

Information- and communication system factors	**Past** (Prior to 1992)	**Present** ('92, '93, '94)	**Future** ('95 and onward)
Control systems (monitoring the work of the organisation)			
Logistics systems (linking of different parts of the organisation)			
Motivation systems (targets and objectives for staff involvement and motivation)			
Planning systems (integration of information to prepare business action plans)			
Yield management system			
Interdepartmental communication			
Market-intelligent information- and communication system			
Simplification of information- and communication systems			
Computer reservation system			
Operation factors			
Aircraft utilisation			
Acquisition of new aircraft			
Acquisition of airport slots			
Frequency in served markets			
Hub and spoke operations			
Long haul routes			
Quality of terminal space and ground facilities			
Matching of aircraft size with route requirement			
Interlining agreements			
Homogeneous aircraft fleet			
Operation on trunk routes			
Code sharing			
Freight operations			
Feeder airline agreements			
Management and organisation factors			
Delegation			
Company culture (shared attitudes, beliefs, norms)			
Union relations			
Employee relations			
Flexible job descriptions			
Job rotation			
Decentralised organisation structure			
Shared company vision (the future 'we' want)			
Management teams (interdepartmental teams)			
Operations without unionised staff (where possible)			
Management's external contacts (Government, etc.)			
Staff reduction			
Employees' autonomy to take decisions			
Company mission (Long-term aims and objectives)			
Employees' incentive program			
Business strategy			
Employees' productivity			
Managers' incentive program			

Cranfield

Marketing factors	**Past** (Prior to 1992)	**Present** ('92, '93, '94)	**Future** ('95 and onward)
Alliance with the incumbents			
Merger/acquisition to gain market share			
Diversification into other industries			
Frequent flyer programs			
Business passengers			
Market share			
Service quality			
Passenger load factors			
Price leadership in served markets			
Expansion into new markets			
Market research			
Media advertising			
Weight load factor			
Avoidance of price wars			
Brand image			
Commission overrides			
Promotion			
Distribution network			
Financial factors			
Cost control			
Cost reduction			
Increase margins			
Debt reduction			
Long-term rather than short-term profits			
Achieving critical mass (investment necessary before profits will be made)			
Turnover growth			
Reduction of labour costs			
Off balance-sheet financing of aircraft			
Fuel costs (fuel efficient aircraft, etc.)			
Please write down any factors which you feel are omitted and rate them as appropriate in the spaces provided.			

3. How many board members did the airline have? ☐ → How many were outside directors? ☐

4. Did the company have a formal mission statement? ☐ Yes ☐ No

5. a. Did managers generally own shares in the airline? ☐ Yes ☐ No

b. If you owned shares, please (√) according to your approximate share-holding? ☐ < 1% ☐ 1 - 2 % ☐ 3 - 4% ☐ 5 - 10 % ☐ 11-15% ☐ 16 - 20% ☐ 21-30% ☐ 31-40% ☐ 41-50% ☐ > 50%

Cranfield

6. How many years of formal education have you completed?

(For example, high school graduate equals 12 years) ☐ years of formal education.

7. If your formal education is more than 12 years, what is your field of specialisation?

(For example: BA degree in Social Sciences; MBA degree with concentration in finance.)

8. What is your age? ☐ years.

9. What management positions have you held until and including the position at the failed airline?

Please (√) in the appropriate column below. If the airline grew from one size classification to another while you held the same position, then please mark in the column that indicates the airline's size just before you made your career move.

Place position at the failed carrier first and indicate if different positions are within the same company.	Number of years in the position	Small regional (< $10 m op. rev.)	Large regional ($10 - 100 m op. rev.)	National ($100 m - 1 bn op. rev.)	Major (> $1bn operating rev.)	Other industry

Please feel free to omit the following section!

I am very interested to hear you view on the reasons for the airline's failure. (Please use the space below or separate paper depending on the space you need).

_____

_____

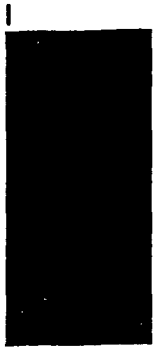
_____

_____

_____

I would like to thank you most sincerely for the time you have spent completing this survey.

6593



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College of Aeronautics
Department of Air Transport
Cranfield, Bedfordshire MK43 OAL
England

NEW-ENTRANT AIRLINES' SUCCESS AND FAILURE FACTORS

Questionnaire

Recent new-entrant

Cranfield

This questionnaire is a part of a larger study to identify the success and failure factors of new-entrant airlines. Please note that the definition of a new-entrant airline for the purpose of this project is: "a domestic or international airline established after deregulation/liberalisation of a domestic market or bilateral route; or a regional carrier that expanded its scope of operations considerable after the regulatory change."

Some of the questions may be in an area which is out of your direct responsibility, please do not omit these questions unless you have no idea at all about their subject.

Please be assured that **all information will be treated in confidence** and the results will be presented in the aggregated form.

---

1. Please indicate (√) if you agree or disagree with the statements in relation to your airline today.

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
Our organisational structure is decentralised.					
Our financial control system is efficient.					
The airline has a vision of the future shared by all the employees.					
We surround ourselves with staff who promotes different orientations and points of view.					
Group consensus is the usual way we make decisions.					
The airline's success is largely dependent on factors out of its control.					
The number of serious problems we are faced with increases constantly.					
Our staff is encouraged to have open discussion about the airline's problems.					
We do detailed analysis before taking any major decision.					
We make changes in our service quite frequently.					
We usually have enough resources to plan for the future.					
Our customer loyalty is strong.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We fulfil our customers' needs well.					
We act immediately upon customer complaints.					
Our marketing performance is good.					
Our long term aims and objectives are easily achievable.					
Our marketing is aggressive.					
We usually receive many useful suggestions from our employees.					
We are more efficient than most of our competitors.					
We try to avoid head to head competition with our larger competitors.					
Our long term aims and objectives guide our business decisions.					
Our airline is flexible enough to respond immediately to major opportunities.					
We are pleased with the performance of our distribution outlets.					
We are innovators in customer service compared to our competitors.					
Lack of capital will not limit our growth.					
Everyone in our airline understands our long term aims and objectives.					
We are constantly identifying threats and opportunities to our business.					
The improvement of the airline's market-share is our number one priority.					
We are rarely taken by surprise by our business environment.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We emphasise planning for the future.					
We grow by selling our services to more customers.					
We allocate major resources for diversification into other industries.					
We plan for and allocate sufficient resources to developing new markets.					
Long-term prospects in our primary markets are excellent.					
We have customer-oriented front-line people.					
Our service has a range of features that makes it distinctive.					
Quality is our major competitive advantage.					
Everyone in our airline understands how they can improve quality.					
We are effective in monitoring our customers' expectation of quality.					
Our internal social and political system support our business aims.					
We are good at changing our staff's beliefs and values.					
Our staff provide us with a competitive advantage.					
We have incentives for our staff that encourages extra commitment.					
We have all the information we need on our customers, markets and opportunities.					
Employees are rewarded for taking actions that benefit our customers.					
Our information system provides us with a clear competitive advantage.					

Cranfield

	Agree strongly	Agree slightly	Neither agree nor disagree	Disagree slightly	Disagree strongly
We are constantly upgrading and improving our information system.					
We would create the same organisation structure as we have now, if given the opportunity.					
We make effective cash-flow forecasts.					
We are good at stimulating demand for our services.					
We are effective in monitoring important cost areas.					
Important information is communicated to employees to enable effective decision-making.					
The board of directors is highly involved in the airline's affairs.					
The atmosphere among employees is very good.					
Our information systems provide quick, accurate and relevant information.					

2. Indicate the **Importance** placed on the following factors at your airline in the **past**, at the **present** and as expected in the **future**. Use **up to 10** points for each factor, **per cell**. The most important factors receive ten (10), factors of least importance may receive one (1) and factors of no importance a zero (0).

Example

Staff factors	Present ('92, '93, '94)	Future (1995 and onward)
Employees' motivation	10	10
Willingness to accept flexible job tasks	4	8

Please remember that you are rating the importance placed on each factor at your airline!

Environment factors	Present ('92, '93, '94)	Future ('95 and onward)
Favourable attitude of travel agents		
Reduction of CRS bias affecting the airline		
Competitor analysis		
Influencing government policy on aviation		
Forecasting adverse effects of the economy on the airline		
Investors' attitudes towards the airline (Investment bankers, stockholders, etc.)		

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Please remember that you are rating the importance placed on each factor at your airline!

Information- and communication system factors	**Present** ('92, '93, '94)	**Future** ('95 and onward)
Control systems (monitoring the work of the organisation)		
Logistics systems (linking of different parts of the organisation)		
Motivation systems (targets and objectives for staff involvement and motivation)		
Planning systems (integration of information to prepare business action plans)		
Yield management system		
Interdepartmental communication		
Market-intelligent information- and communication system		
Simplification of information- and communication systems		
Computer reservation system		
Operation factors		
Aircraft utilisation		
Acquisition of new aircraft		
Acquisition of airport slots		
Frequency in served markets		
Hub and spoke operations		
Long haul routes		
Quality of terminal space and ground facilities		
Matching of aircraft size with route requirement		
Interlining agreements		
Homogeneous aircraft fleet		
Operation on trunk routes		
Code sharing		
Freight operations		
Feeder airline agreements		
Management and organisation factors		
Delegation		
Company culture (shared attitudes, beliefs, norms)		
Union relations		
Employee relations		
Flexible job descriptions		
Job rotation		
Decentralised organisation structure		
Shared company vision (the future 'we' want)		
Management teams (interdepartmental teams)		
Operations without unionised staff (where possible)		
Management's external contacts (Government, etc.)		
Staff reduction		
Employees' autonomy to take decisions		
Company mission (Long-term aims and objectives)		
Employees' incentive program		
Business strategy		
Employees' productivity		
Managers' incentive program		

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Please remember that you are rating the importance placed on each factor at your airline!

Marketing factors	Present ('92, '93,'94)	Future ('95 and onward)
Alliance with the incumbents		
Merger/acquisition to gain market share		
Diversification into other industries		
Frequent flyer programs		
Business passengers		
Market share		
Service quality		
Passenger load factors		
Price leadership in served markets		
Expansion into new markets		
Market research		
Media advertising		
Weight load factor		
Avoidance of price wars		
Brand image		
Commission overrides		
Promotion		
Distribution network		
Financial factors		
Cost control		
Cost reduction		
Increase margins		
Debt reduction		
Long-term rather than short-term profits		
Achieving critical mass (investment necessary before profits will be made)		
Turnover growth		
Reduction of labour costs		
Off balance-sheet financing of aircraft		
Fuel costs (fuel efficient aircraft, etc.)		
Please write down any factors which you feel are omitted above and rate them as appropriate in the spaces provided.		

3. How many board members does the airline have? ☐ → How many are outside directors? ☐

4. Does the company have a formal mission statement? ☐ Yes ☐ No

5. a. Do managers generally own shares in the airline? ☐ Yes ☐ No

b. If you own shares, please (√) according to your approximate share-holding? ☐ < 1% ☐ 1 - 2 % ☐ 3 - 4% ☐ 5 -10 % ☐ 11-15% ☐ 16 - 20% ☐ 21-30% ☐ 31-40% ☐ 41-50% ☐ > 50%

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6. How many years of formal education have you completed?

(For example, high school graduate equals 12 years.) ☐ years of formal education.

7. If your formal education is more than 12 years, what is your field of specialisation?

(For example: BA degree in Social Sciences; MBA degree with concentration in finance.)

8. What is your age? ☐ years.

9. What management positions have you held?

Please (√) in the appropriate column below. If the airline grew from one size classification to another while you held the same position, then please mark in the column that indicates the airline's size just before you made your career move.

Place present position first and indicate if different positions are within the same company.	**Number of years in the position**	**Small regional** (< $10 m op. rev.)	**Large regional** ($10 - 100 m op. rev.)	**National** ($100 m - 1 bn op. rev.)	**Major** (> $1bn operating rev.)	**Other industry**

If you have any comments on this survey or on new-entrant airlines' success or failure, please feel free to use the spaces below or separate paper:

_____

_____

_____

_____

_____

I would like to thank you most sincerely for the time you have spent completing this survey.

6.5.93

8 August, 1995

«Name»
«Title»
«Airline»
«Street»
«City», «State» «Postcode»
«Country»

Dear «Name»:

We feel that your participation in assessing the importance of key success and failure factors of new-entrant airlines is of a crucial importance for the advancement of current knowledge on airlines' success and failure.

The results of the project will have an important meaning for you as an airline manager. Therefore, could you give the questionnaire sent to you in May your urgent attention? If your have not received the questionnaire, then please return the enclosed response form so we can rush a copy to you.

Please be assured that your participation is strictly confidential and the results will only be reported in the aggregated form. The name of individual airlines will not be mentioned in conjunction with the data derived from the questionnaire survey.

We want to emphasise that you will be sent a personal copy of the results upon participation.

Sincerely,

Sveinn Vidar Gudmundsson

Encl.

26 January, 1993

«Airline»
«Name»
«Title»
«Street»
«City», «State» «Postcode»
«Country»

Sveinn Vidar Gudmundsson
College of Aeronautics
department of Air Transport
Cranfield Institute of Technology
Cranfield, Beds MK43 OAL
United Kingdom

Dear «Name»:

Many new airlines have been launched in the last ten years. Many of these airlines have had success but then failed, few have survived and prospered. Many questions come up as a result: Is success and failure primarily caused by external factors or are there internal factors that have much influence? Can critical success and failure factors be established and measured, thus improving managers ability to monitor their airlines wellbeing?

In my research, which is part of a Ph.D. study, I will search for answers for the above mentioned questions and many more concerned with new entrant airlines in liberated or deregulated market. Over sixty new entrant airlines in Europe and North-America will be studied.

I would very much value your help by filling in the enclosed questionnaire based on your views and experience. It should not take you much more than 30 minutes.

If you would like to receive a private copy of the results of this questionnaire, I would be happy to send it to you. Furthermore, if you would like to discuss the results or new entrant airline's success and failure, I would be very pleased to arrange a meeting with you.

I would like to emphasise that your name and your answers will be held strictly confidential and the results will only be reported as averages for a number of grouped airlines.

Yours faithfully,

Sveinn Vidar Gudmundsson, BS(Aviation), MBA, MSc

Teleph.: +44 (0)234 -750111 (Message dep. Transport)
Fax: +44 (0)234 752207

Encl. Survey questionnaire,

Cranfield
College of Aeronautics - Department of Air Transport

I have not received the questionnaire. (Please send it to me!)..... ☐

Name: _____

Title: _____

Company: _____

Address: _____

_____

28.7.93

Comments: